DEPARTMENT OF THE ARMY TECHNICAL M

PERATOR, ORGANIZATIONAL, DIRECT SUPPORT,
GENERAL SUPPORT, AND DEPOT
MAINTENANCE MANUAL

KETTLE, HEATING, BITUMINOUS, GASOLINE ENGINE, WHEEL MOUNTED, 2 PNEUMATIC TIRES, 165-GALLON CAPACITY (WHITE MFG. MODEL F3M-1) FSN 3895-442-9741

This copy is a reprint which includes current pages from Changes 1 and 3.

SAFETY PRECAUTIONS

Do not use a lifting device of less than a 2,000-pound capacity. Do not allow the heating kettl and forth when it is suspended. Failure to observe this warning can result in damage to the equipr injury or death to personnel.

Always release the pressure from the burner fuel tank before attempting to remove the cap. I from cap when releasing pressure. Do not use a carbon tetrachloride-type fire extinguisher or guish a bitumen liquid fire. Failure to observe this warning will cause explosions injurious to pers

Always provide a metal-to-metal contact between the fuel container and the engine fuel ta ishing the fuel supply. This will prevent a spark from being generated as the fuel flows over the m

Do not fill the engine fuel tank while the engine is in operation. Gasoline spilled on a hot en and explode, causing serious injury to personnel.

Do not attempt repairs on the power spray system while the engine is in operation.

Do not operate the heating kettle with the melting tank cover open during rain. Water conta near or at operating temperature will cause explosions injurious to personnel.

Change No. 3

HEADQUARTE
DEPARTMENT OF TH
Washington, D. C., *17 Sept*

Operator, Organizational, Direct Support General Support, and Depot Maintenance Manual KETTLE, HEATING, BITUMINOUS: GASOLINE ENGINE; WHEEL MOUNTED, 2 PNEUMATIC TIRES; 165-GALLON CAPACITY (WHITE MFG. MODEL F3M-1) FSN 3895-442-9741

TM 5-3895-334-15, 29 April 1970 is changed as follows:

Inside Front Cover "FSN 4210-984-5270" is changed to read "FSN 4210-889-2221."

Page i. Appendix B title is changed as follows: "BASIC ISSUE ITEM LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED."

Page 2-1. Paragraph 2-2 is superseded as follows:

2-2. Installation of Separately Packed Parts and Accessories

a. The following items have been removed prior to shipment and are packed inside the kettle. Install as shown by Figure 2-1.

(1) Drawoff valve
(2) Thermometer
(3) Torch
(4) Burner cleaning wire
(5) Valve wrench
(6) Manual burner fuel hose
(7) Pressure gauge
(8) Safety valve
(9) Burner handle
(10) Starter rope
(11) Spray bar assembly with 2 pieces
(12) pray bar house assembly, 15 ft lg

b. The fire extinguisher will be installe

(1) Bolt *the fire extinguisher bra* mounting plate located on the left fron kettle (observed from the towed end #10 machine screws 1 inch long with nu washers are required for mounting.

(2) Place fire extinguisher in the fasten clamp.

Page B-1. Appendix B, Basic Issue It superseded as follows:

APPENDIX B

abetical sequence, of items which are furnished and which must be turned in with the end item.
Items Troop Installed or Authorized List — ion III. A list, in alphabetical sequence of items ch at the descretion of the unit commander accompany the end item, but are NOT subject e turned in with the end item.

. Explanation of Columns

ne following provides an explanation of columns ne tabular list of Basic Issue Items List, Section and Items Troop Installed or Authorized, Sec- III.

Source, Maintenance and Recoverability Code SMR):

(1) Source code, indicates the source for the d item, Source codes are:

Explanation
Repair parts, special tools and test equipment supplied from GSA/DSA Or Army supply system and authorized for use at indicated maintenance levels.
Repair parts, special tools and test equipment which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.

(2) Maintenance code, indicates the lowest level naintenance authorized to install the listed item. maintenance level code is:

Explanation
Crew/Operator

(3) Recoverability code, indicates whether unriceable items should be returned for recovery

	ponents), special tools and test eq which are considered economically able at direct and general support nance levels.
S	Repair parts, special tools, test equipn assemblies which are economicall able at DSU and GSU activities an are normally furnished by supply o change basis.

b. Federal stock Number. This column inc the Federal stock number assigned to the ite will be used for requisitioning purposes.

c. Description. This column indicates the F item name and any additional description of th required.

d. Unit of Measure (U/M). A 2-character betic abbreviation indicating the amount or tity of the item upon which the allowanc based e.g., ft, ea, pr, etc.

e. Quantity Furnished with Equipment Only). This column indicates the quantity of a furnished with the equipment.

f. Quantity Authorized (Items Troop In or Authorized Only). This column indicates the tity of the item authorized to be used wi equipment.

g. Illustration (BIIL Only). This column is as follows:

(1) Figure Number. Indicates the figure n of the illustration in which the item is shown.

(2) Item Number. Indicates the callout n used to reference the item in the illustration.

Section II. BASIC ISSUE ITEMS LIST

(1) SMR code	(2) Federal stock number	(3) Description Ref No. & mfr code	Usable on code	(4) Unit of meas	(5) Qty Furn with equip	(6) Illustratio (a) Figure No.

	4210-889-2221	EXTINGUISHER, FIRE	EA
	5120-264-3793	WRENCH, ADJUSTABLE	EA
	5120-277-1461	WRENCH, PIPE	EA
	5120-262-8486	WRENCH, BUNG	EA
	8415-427-5003	GLOVES, CLOTH ASBESTOS	PR

Order of the Secretary of the Army:

CREIGHTON W
General, United
Chief of Staff

ficial:
VERNE L. BOWERS
Major General, United States Army
The Adjutant General

istribution:
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ituminous.

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5-3895-334-15

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Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual

KETTLE, HEATING, BITUMINOUS, GASOLINE ENGINE, WHEEL MOUNTED, 2 PNEUMATIC TIRES, 165-GALLON CAPACITY (WHITE MFG. MODEL F3M-1) FSN 3895-442-9741

5-3895-334-15, 29 April 1970, is changed as fol-

e front cover. Add: "Do not tow the kettle with
nelt tank cover open. Vehicle motion can cause
nen to splash out and burn personnel in the
ediate vicinity." "Do not operate this equip-
unless fire extinguisher, FSN 4210-984-5270,
uivalent is readily available at all times."

Page 2-9. After paragraph 2-11*a*(6), add:

"CAUTION

Do not operate this equipment unless fire extinguisher, FSN 4210-257-5343, or equivalent is readily available at all times."

Page 2-12. After paragraph 2-11*c*(4), add:

"WARNING

Do not tow kettle with the melt tank cover open. Vehicle motion can cause bitumen to

Page 2-12, figure 2-6; add the follov

"NOTE

Both valves should be in center p

Page 2-31, figure 2-6; add the follov

"NOTE

Upper valve should be in far left
lower valve in center position."

Page 2-14, figure 2-6; add the follo

"NOTE

Upper valve should be in center
lower valve in far left position."

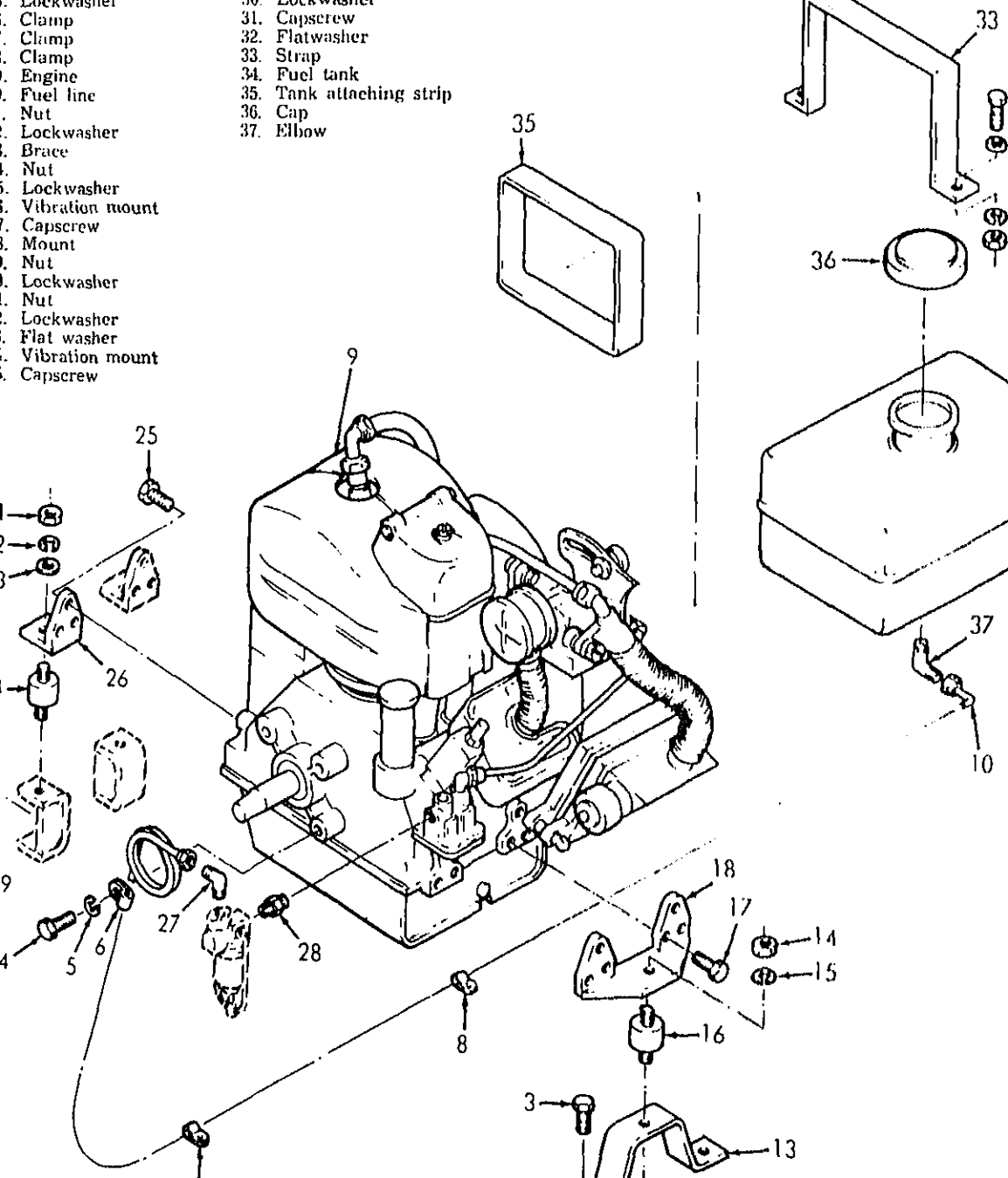
Page 2-15, figure 2-6; add the foll

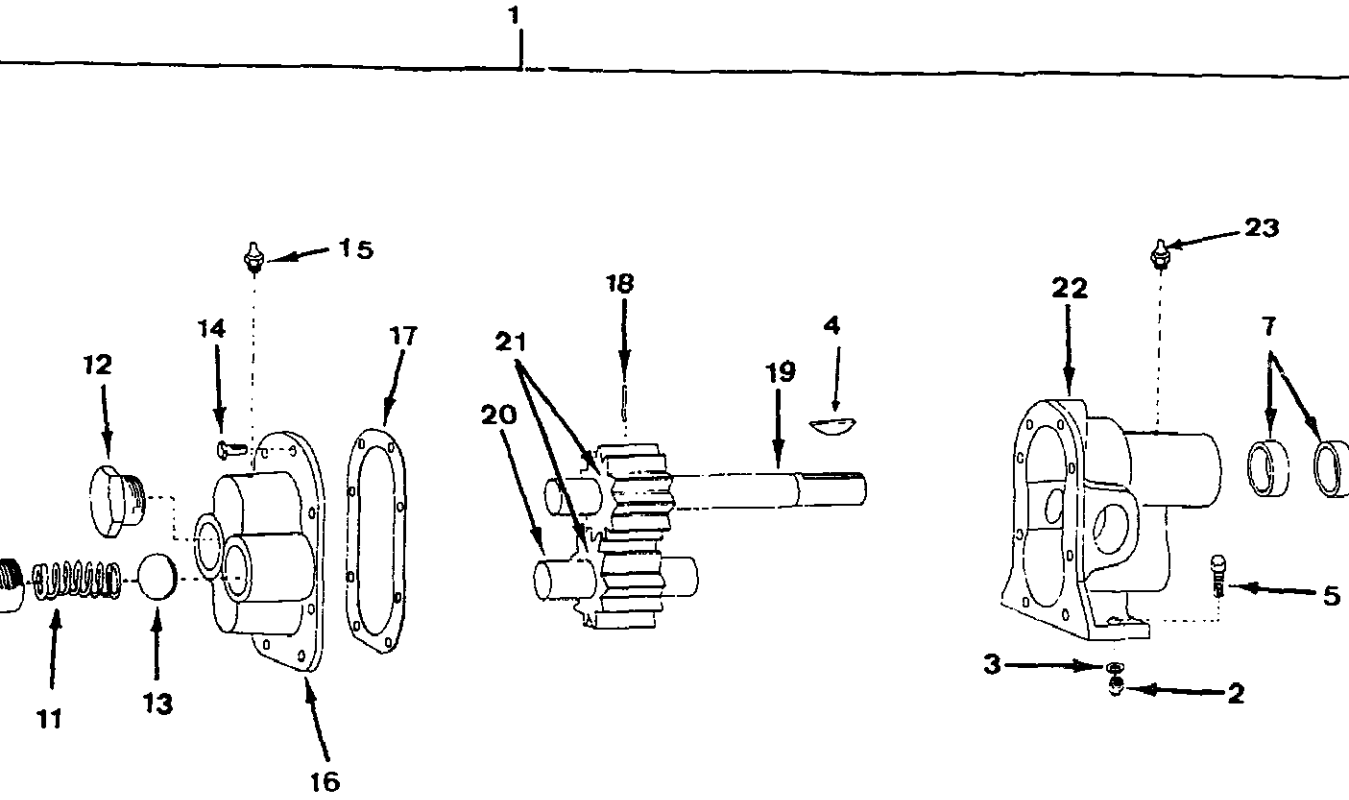
"NOTE

Both valves should be in far left p

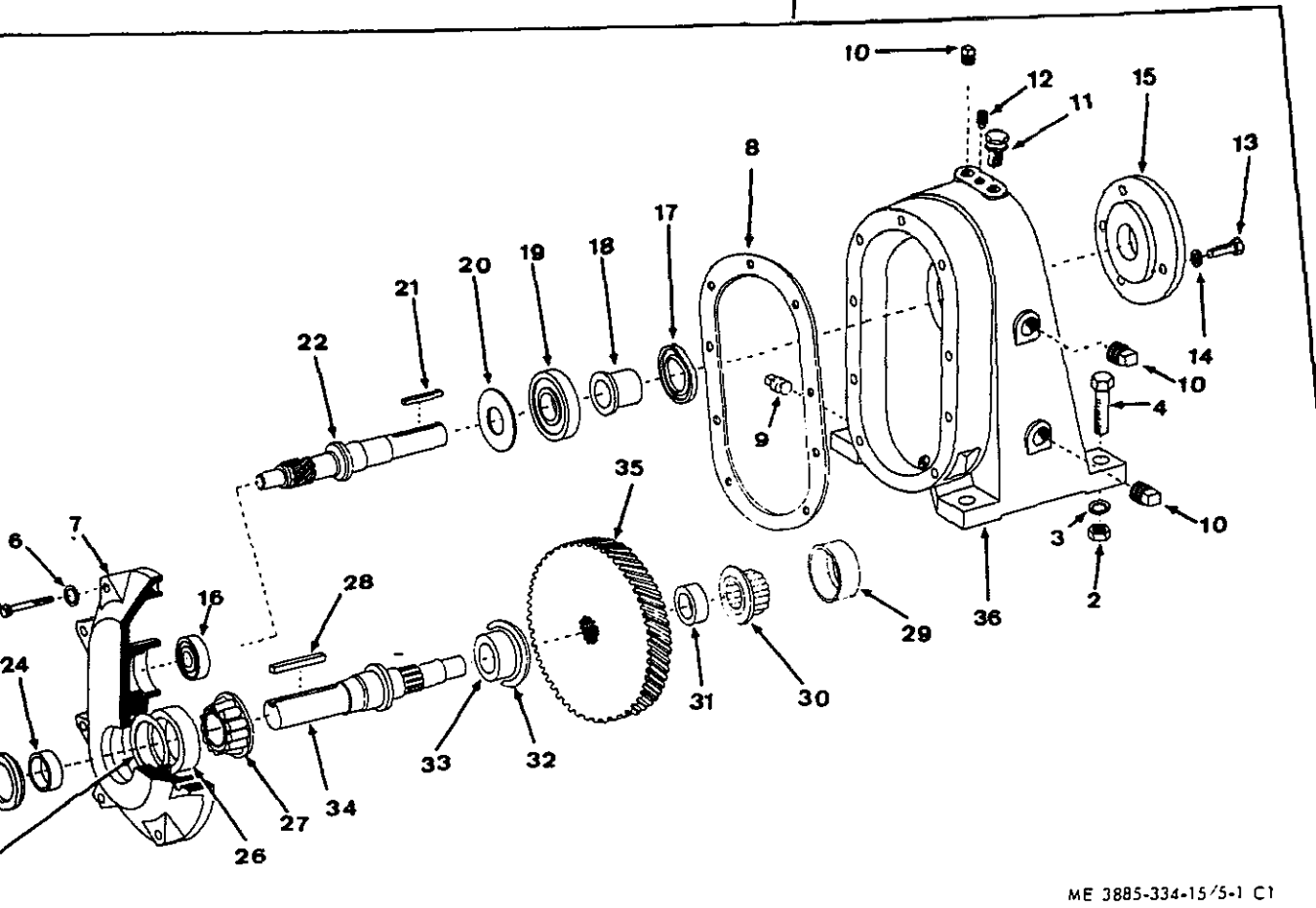
. Lockwasher
. Clamp
. Clamp
. Clamp
. Engine
. Fuel line
. Nut
. Lockwasher
. Brace
. Nut
. Lockwasher
. Vibration mount
. Capscrew
. Mount
. Nut
. Lockwasher
. Nut
. Lockwasher
. Flat washer
. Vibration mount
. Capscrew

30. Lockwasher
31. Capscrew
32. Flatwasher
33. Strap
34. Fuel tank
35. Tank attaching strip
36. Cap
37. Elbow





7. Packing ring (2)
8. Bypass nut
9. Locknut
10. Adjusting screw
13. Steel ball
14. Cover screw
15. Lubricating fitting
16. Cover
19. Drive shaft
20. Idler shaft
21. Pump gear



ME 3885-334-15/5-1 C1

1. Gear reducer assembly
2. Nut
3. Lockwasher
4. Capscrew
5. Capscrew
10. Plug
11. Vent plug
12. Plug
13. Capscrew
14. Lockwasher
19. Inner input shaft bearing
20. Slinger
21. Input shaft key
22. Pinion shaft
23. Output shaft oil seal
28. Output shaft key
29. Bearing cup
30. Cone bearing
31. Gear spacer
32. Lock ring

Section II. BASIC ISSUE ITEMS

(1) SMR Code	(2) Federal stock No.	(3) Description Ref No. & Mfr Code / Usable on code	(4) Unit of meas
		GROUP 01 ACCESSORIES	
PC	7510-889-3494	BINDER, looseleaf	ea
PC	7520-559-9618	CASE, operator and maintenance publications	ea
PC	4530-478-8073	CLEANER, jet burner TK-002 (03742)	ea
PC	4530-478-8074	TORCH, burner lighter TK-166B (03742)	ea
		GROUP 02—PUBLICATIONS ARMY TECHNICAL MANUAL	
		TM 5-2805-256-14	ea
		TM 5-3895-334-15	ea
		ARMY LUBRICATION ORDER	
		LO 5-2805-256-12	ea
		LO 5-3895-334-12	ea

Chief of Staff.

ial:

ERNE L. BOWERS,
ajor General, United States Army,
ne Adjutant General.

ibution:

To be distributed in accordance with DA Form 12-25 (qty rqr block No. 421) operator maintenance requiremer
Bituminous.

DEPARTMENT OF THE
Washington, D.C., 29 Ap

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL

KETTLE, HEATING, BITUMINOUS, GASOLINE ENGINE, WHEEL MOUNTEI PNEUMATIC TIRES, 165-GALLON CAPACITY (WHITE MFG. MODEL F3M- FSN 3895-442-9741

Section I. GENERAL

ope

ese instructions are published for the use of onnel to whom the Model F3M-1, Bitumen Kettle is issued. They provide information operation, lubrication, and daily preventive ance services of the equipment, accessories, nts, and attachments.

mbers placed in parentheses on illustrations anual indicate quantity.

1-2. Forms and Records

a. DA Forms and records used for equip tenance will be only those prescribed in

b. Report of errors, omissions, and rec tions for improving this publication by t ual user is encouraged. Reports should be on DA Form 2028 (Recommended Change cations) and forwarded direct to Comma eral, U.S. Army Mobility Equipment ATTN: AMSME-MPP, 4300 Goodfellow St. Louis, Mo. 63120.

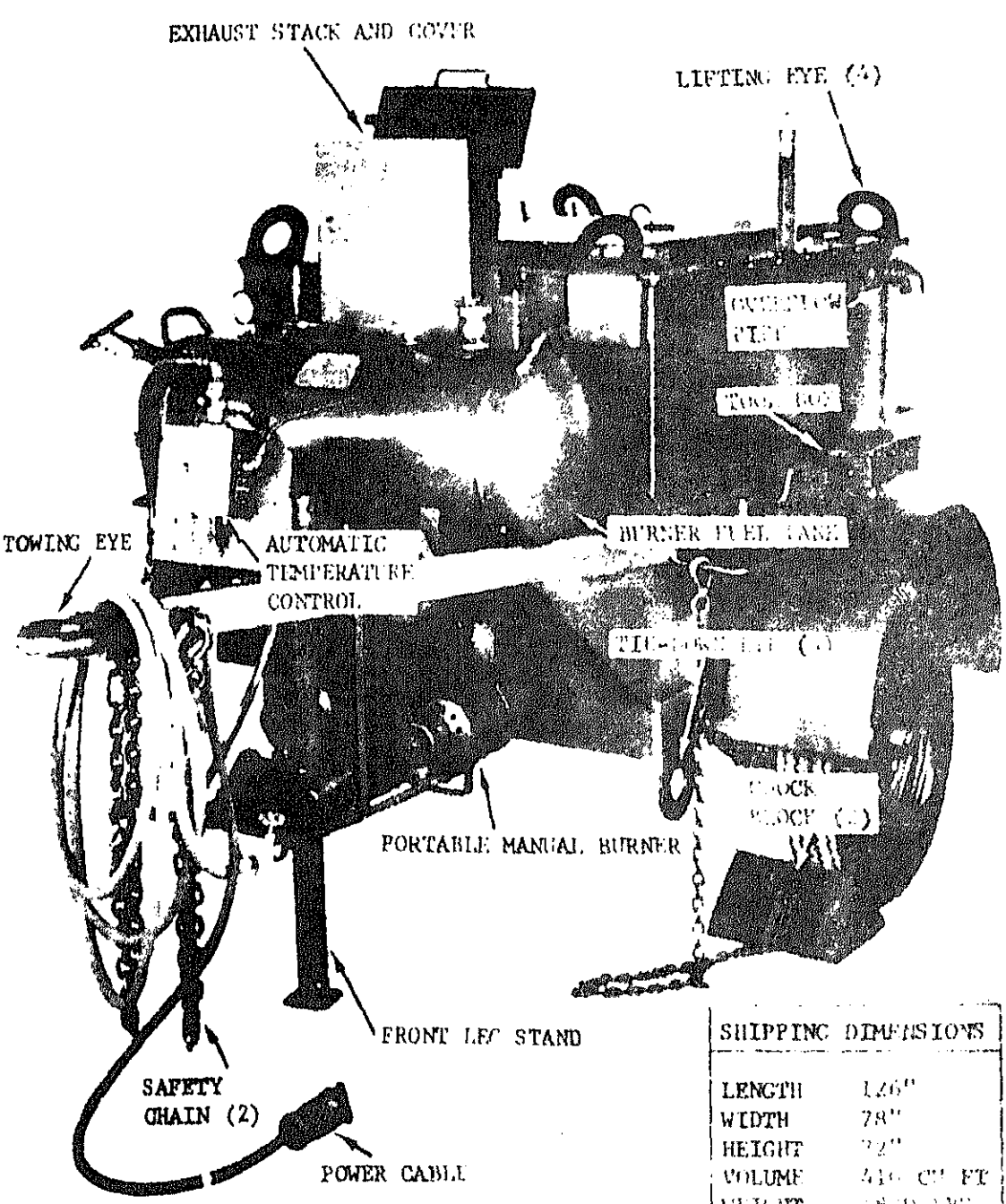
Section II. DESCRIPTION AND DATA

scription

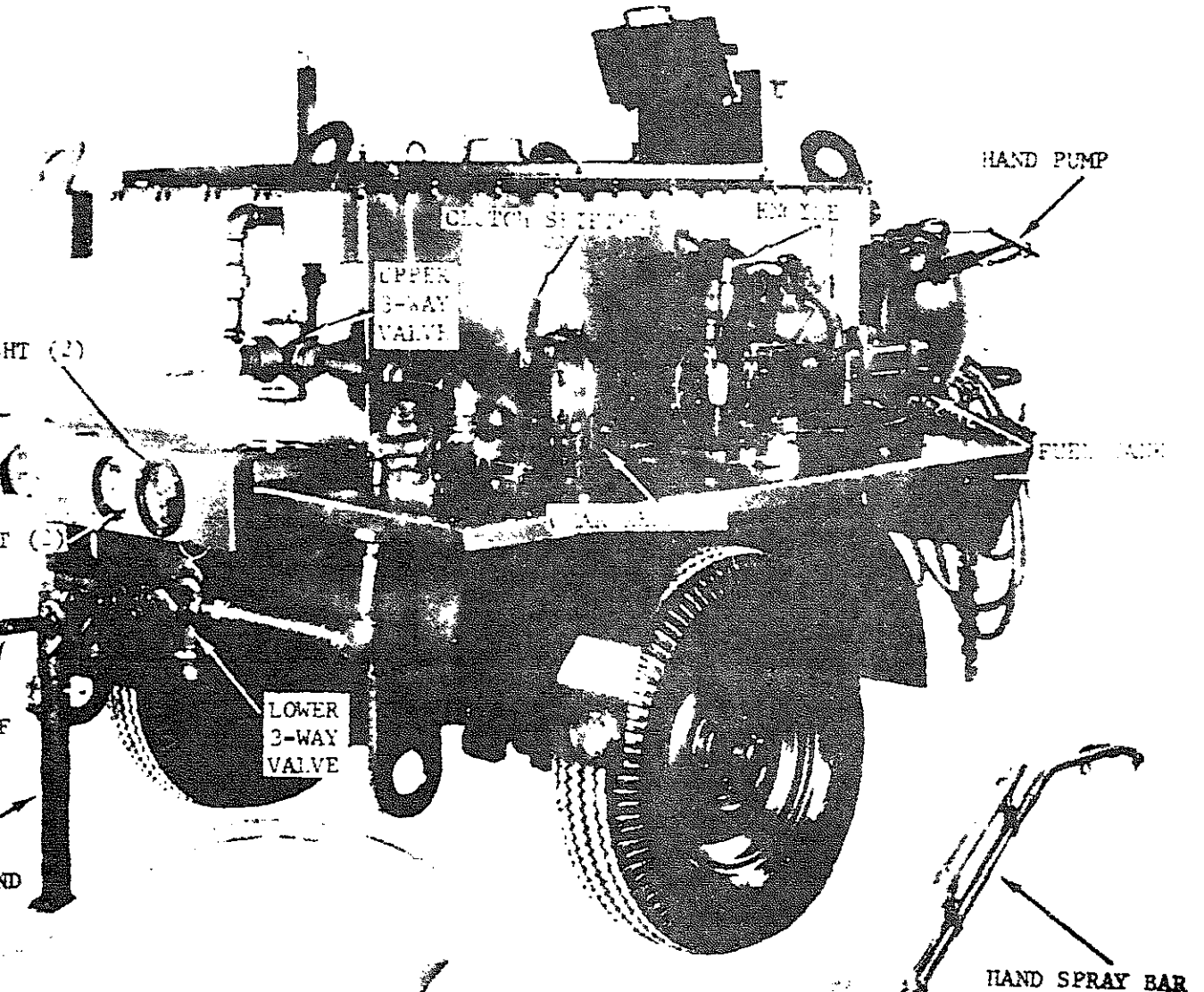
eral. Model F3M-1, Bitumen Heating Kettle and 1-2) is a self-contained, weather-resist- -gallon capacity, portable unit. It consists le system, burner system, and power spray nd is wheel mounted. The power spray sys- owered by a 1-cylinder Military Standard ig. 1-2), Model 1A08-III. The unit is designed modate, melt, and spray specified bitumi- terials for the maintenance and repair of d runways. The heating kettle is equipped to ituminous material in either liquid or solid

gine. For engine information, refer to TM 5- -14.

d. Burner System. The burner system a fuel tank, two burner fuel hose assem burners and a thermostatic control. It i for operation on kerosene or diesel fuel. T fuel tank (fig. 1-1) is equipped with a hand Air pressure in the fuel tank forces fu both fuel line assemblies to the burners vaporized, ignited, and the flames direct combustion chamber. One burner is ma trolled by means of a valve and equipped fuel hose so that it may be removed from ing bracket and used as a hand torch. burner is equipped with thermostatic contr tain any desired temperature within the range. An overtemperature safety shutol



SHIPPING DIMENSIONS	
LENGTH	146"
WIDTH	78"
HEIGHT	72"
VOLUME	410 CU FT
WEIGHT	[illegible]


HAND PUMP
UPPER
3-WAY
VALVE
LOWER
3-WAY
VALVE
HAND SPRAY BAR

directed back to the melting tank or through the spray hose to the outlet nozzle. The pump assembly is equipped with a relief valve (fig. 3-17) that automatically allows material to circulate around the pump assembly when spraying operations are temporarily interrupted.

f. Trailer System. The trailer system consists of a frame assembly, running gear, and lighting system. It is equipped with tiedown eyes, lifting eyes, and towing eye (fig. 1-1) for coupling the unit to a towing vehicle. The lighting system operates when the power cable (fig. 1-1) is coupled to a power source.

1-4. Identification

The kettle has six identification plates. The data from these plates can be found in paragraph 1-6.

1-5. Diff. rence in Models

This manual covers only the White Model F3M-1 Kettle. No known unit differences exist for this model.

1-6. Operational and Organizational Tabulated Data

a. General.

Manufacturer	White Mfg. Div. of Midwest Tank & Mfg. Co., Inc.
Model No.	F3M-1
Capacity	165 gal

b. Engine Plate. For engine plate data on model 1A08-III, see TM 5-2805-256-14.

c. Speed Reducer Plate.

Ratio	4.13 to 1
Service factor	1.00
Torque capacity	324 in.-lbs.

d. Air Tank Plate.

Manufacturer	Midwest Tar
National Board No.	366
Max W. P.	100 psi
Tested	200 psi
Head thickness	3/16"
Shell thickness	3/16"
Year built	1969

e. Army Identification Plate.

Nomenclature	Kettle, Heat 165-gal Ca
Model	F3M-1
Federal Stock No.	3895-442-974
Warranty	12 months
Contract No.	DSA700-69-(
Gross vehicle wt.	3000 lbs.
Shipping wt.	1800 lbs.
Length	126"
Height	72"
Width	78"
Cube	410

f. Transportation Data Plate.

Overall length	126"
Overall height	72"
Overall width	78"
Shipping cubage	410"
Shipping tonnage	11
Shipping weight	1800 lbs

g. Wiring Diagram. A wiring diag provided for maintenance of the elect

h. Clutch Assembly.

Manufacturer	Twin Disc C
Model	V-1035

i. Speed Reducer Assembly.

Manufacturer	Dodge Manu Corporation
Model number	SR-16A

j. Pump Assembly.

Manufacturer	Oberdorfer
Model number	9000 BR

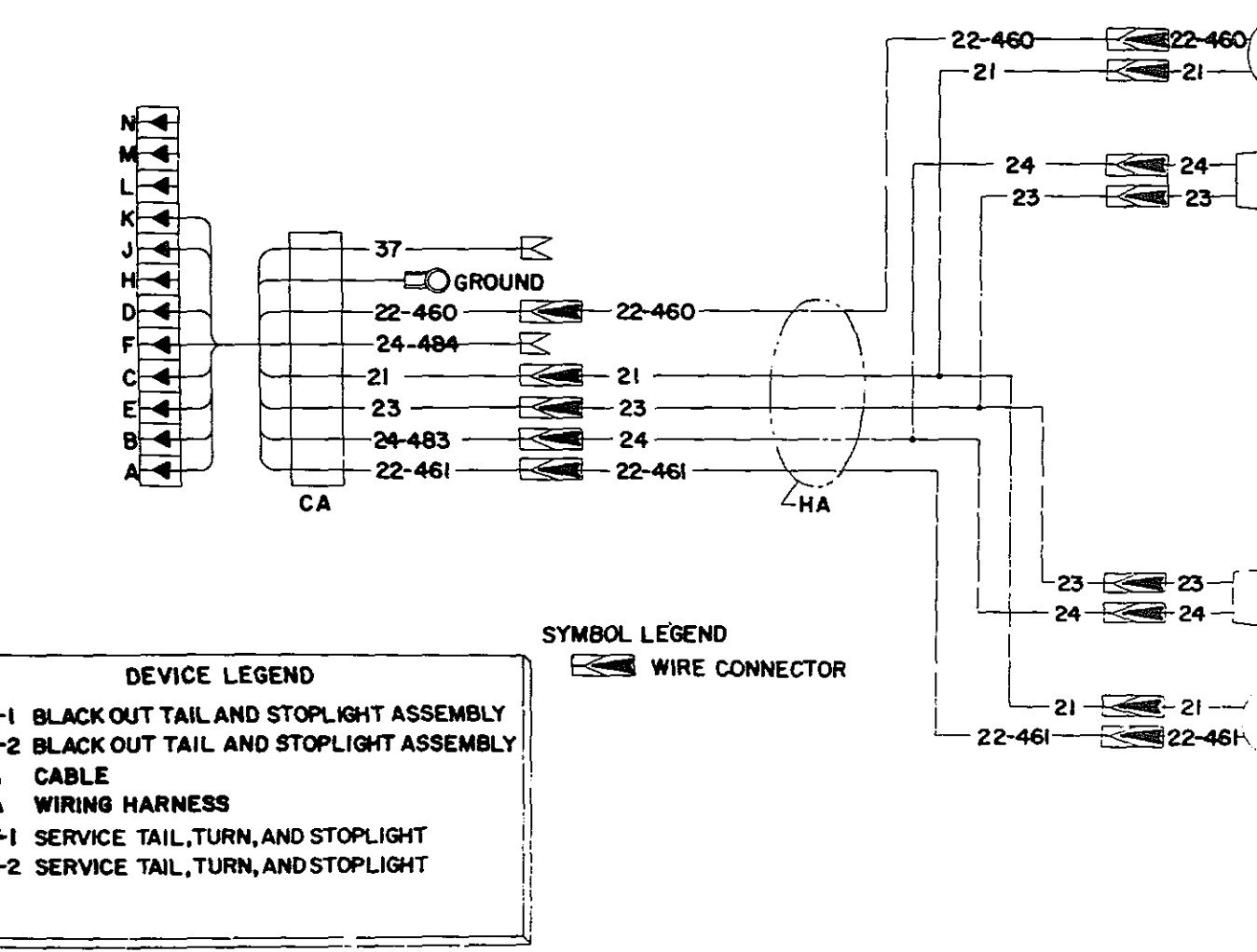


Figure 1-3. Schematic wiring diagram.

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

Inspecting and Servicing Equipment

Remove protective covering or sealing mate- from valves, tank openings, etc.

Remove separately packed accessories and parts inside heating kettle.

Make visual inspection of the kettle and acces- s for damage or missing parts.

Check equipment against packing list and re- any discrepancies to field maintenance.

Installation of Separately Packed Parts and essories

following items have been removed prior to ment, and are packed inside the kettle. Install own by figure 2-1.

Drawoff valve.

Thermometer.

Torch.

d. Burner cleaning wire.

e. Valve wrench.

f. Manual burner fuel hose.

g. Pressure gauge.

h. Safety valve.

i. Burner handle.

j. Starter rope.

k. Spray bar assembly with 2 pieces.

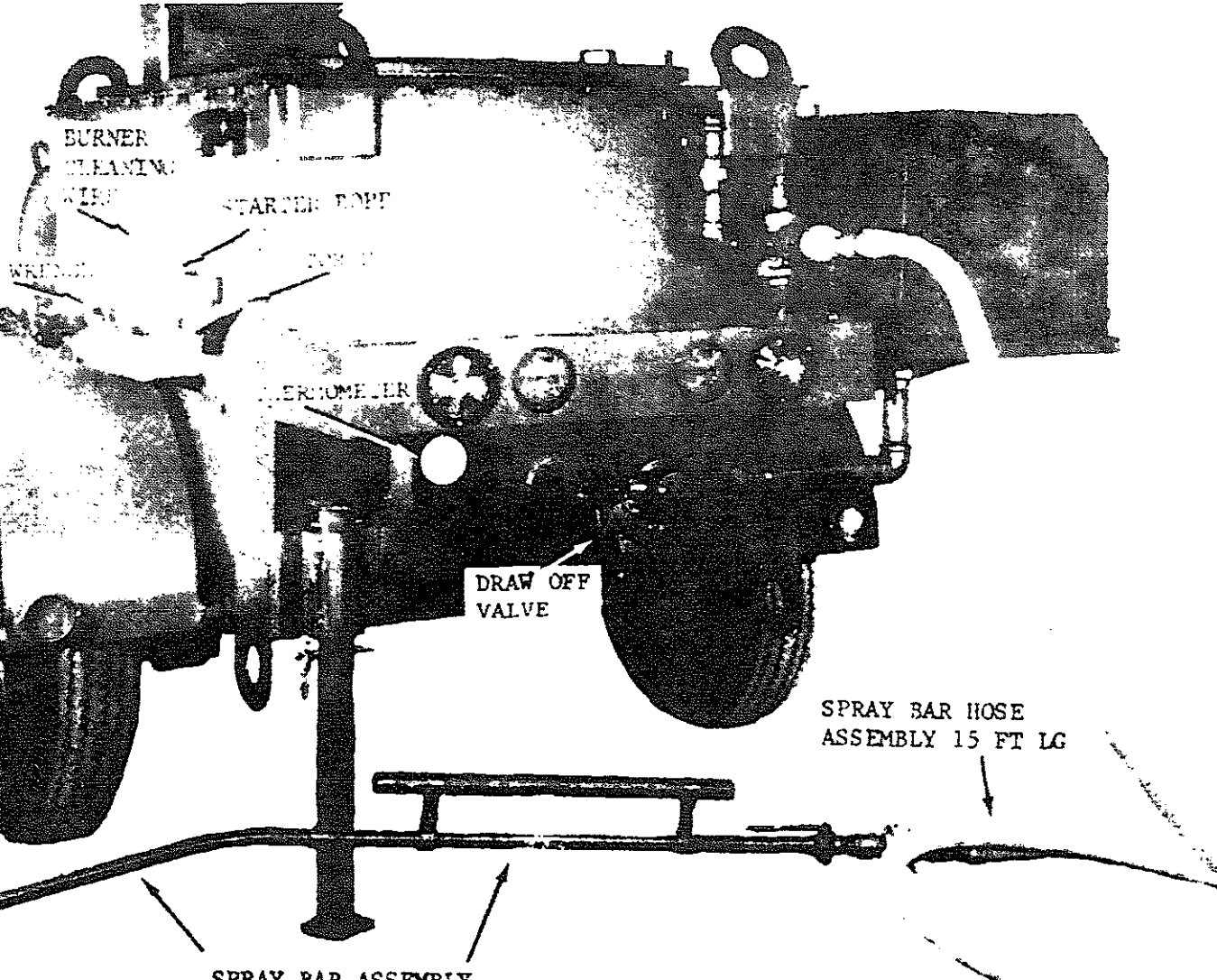
l. Spray bar hose assembly, 15 ft lg.

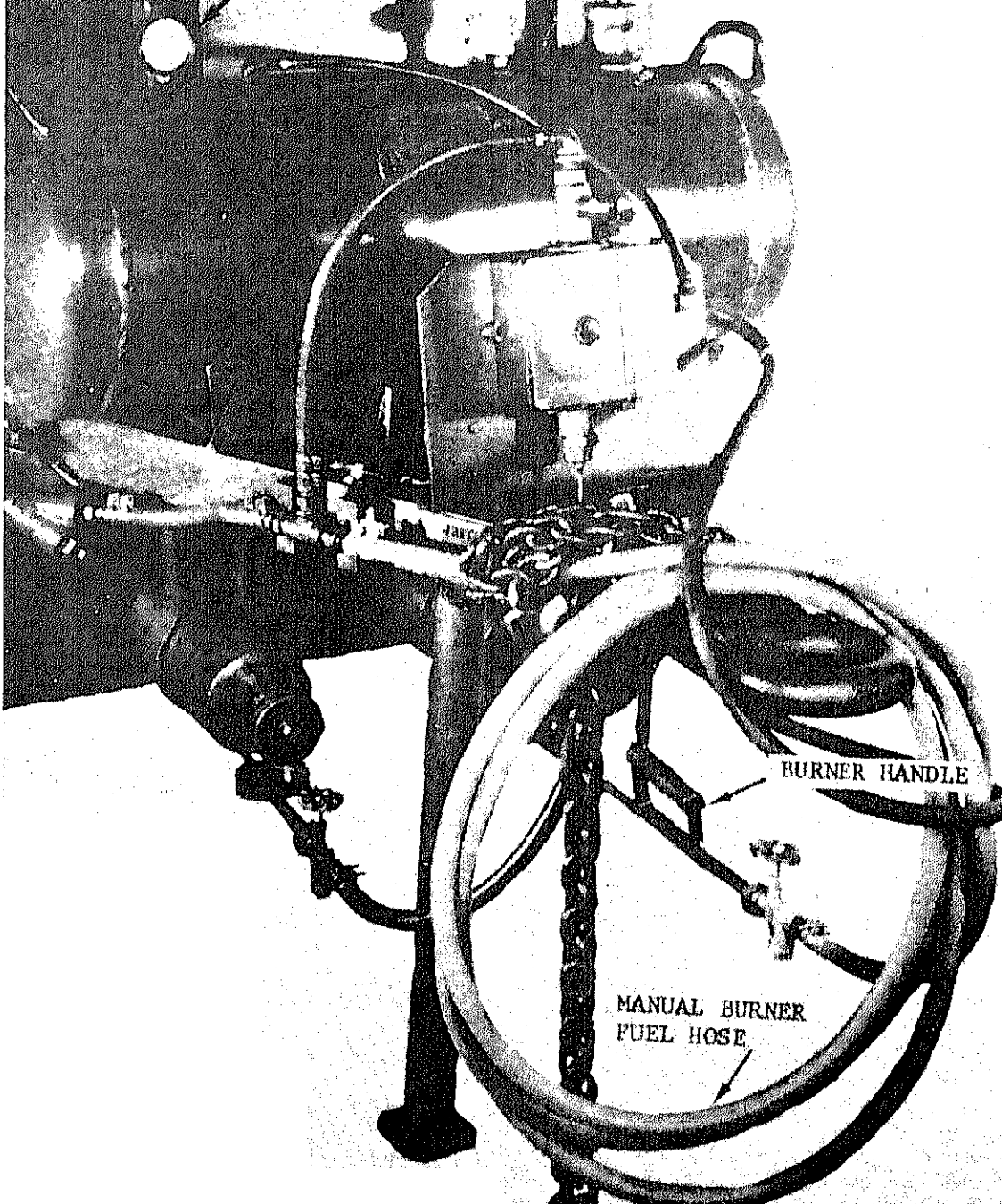
2-3. Installation and Setting-Up Instruct

a. Lower front leg stand (fig. 1-1) and stand (fig. 1-2) and pin in place before releas towing vehicle, or releasing tension on lifting

b. Keep kettle as level as possible durin tion.

c. Chock wheels, if necessary, to preve tentional movement.


BURNER
STARTER ROPE
DRAW OFF
VALVE
SPRAY BAR HOSE
ASSEMBLY 15 FT LG
SPRAY BAR ASSEMBLY


BURNER HANDLE
MANUAL BURNER
FUEL HOSE

a. Attach towing eye (fig. 1-1) to suitable towing
hicle.

b. Connect power cable (fig. 1-1) to vehicle power
ceptacle.

c. Raise front leg stand (fig. 1-1) and rear leg
and (fig. 1-2) and pin in retracted position.

e. Attach safety chains to towing vehicle f
kettle.

2-5. Re-installation After Movement

See paragraph 2-3.

Section III. CONTROLS AND INSTRUMENTS

-6. General

his section describes and illustrates the various
ntrols and instruments and provides the operator
ith sufficient information to insure proper opera-
on of the kettle under normal circumstances.

2-7. Controls and Instruments

Figure 2-2 illustrates and explains the functi
controls. Figure 2-3 illustrates the normal
readings for all instruments.

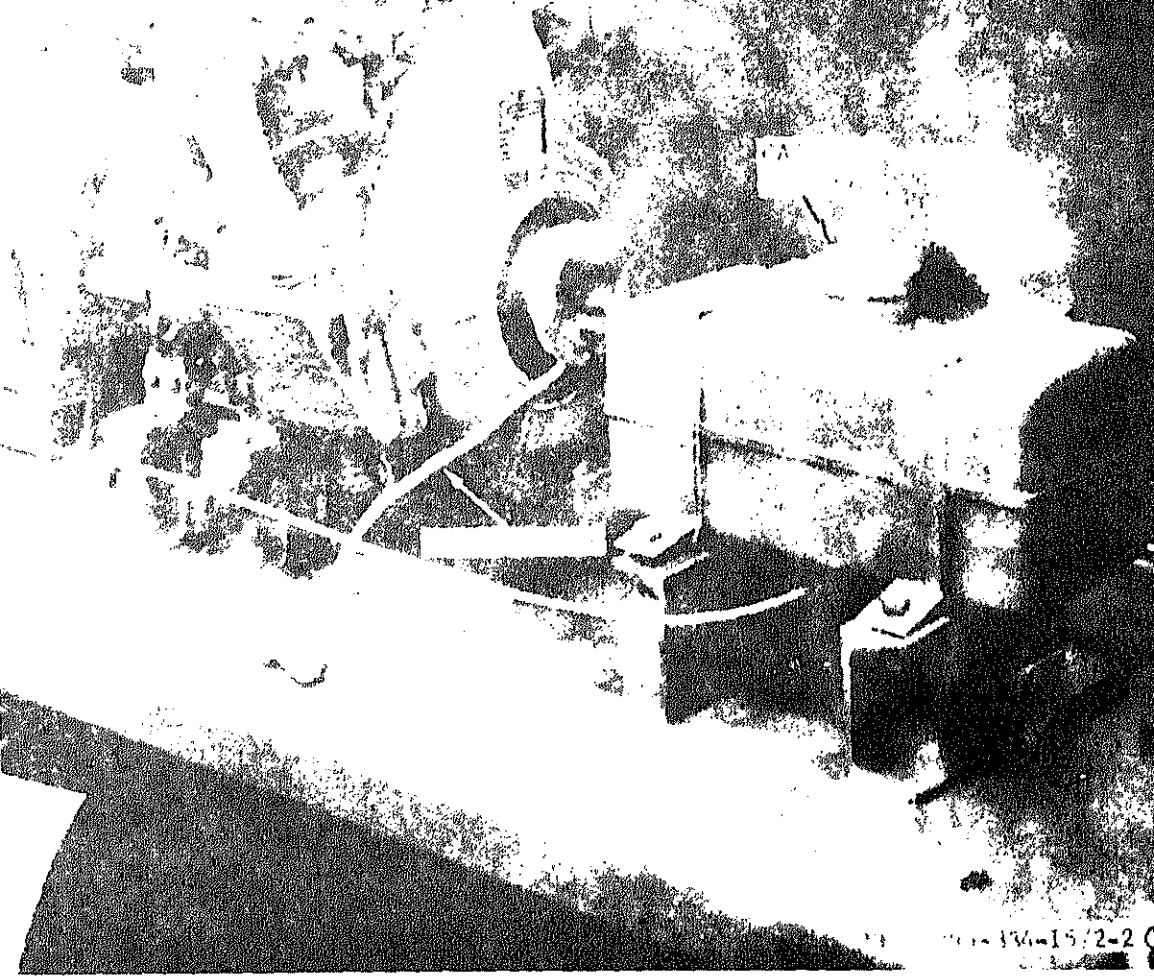
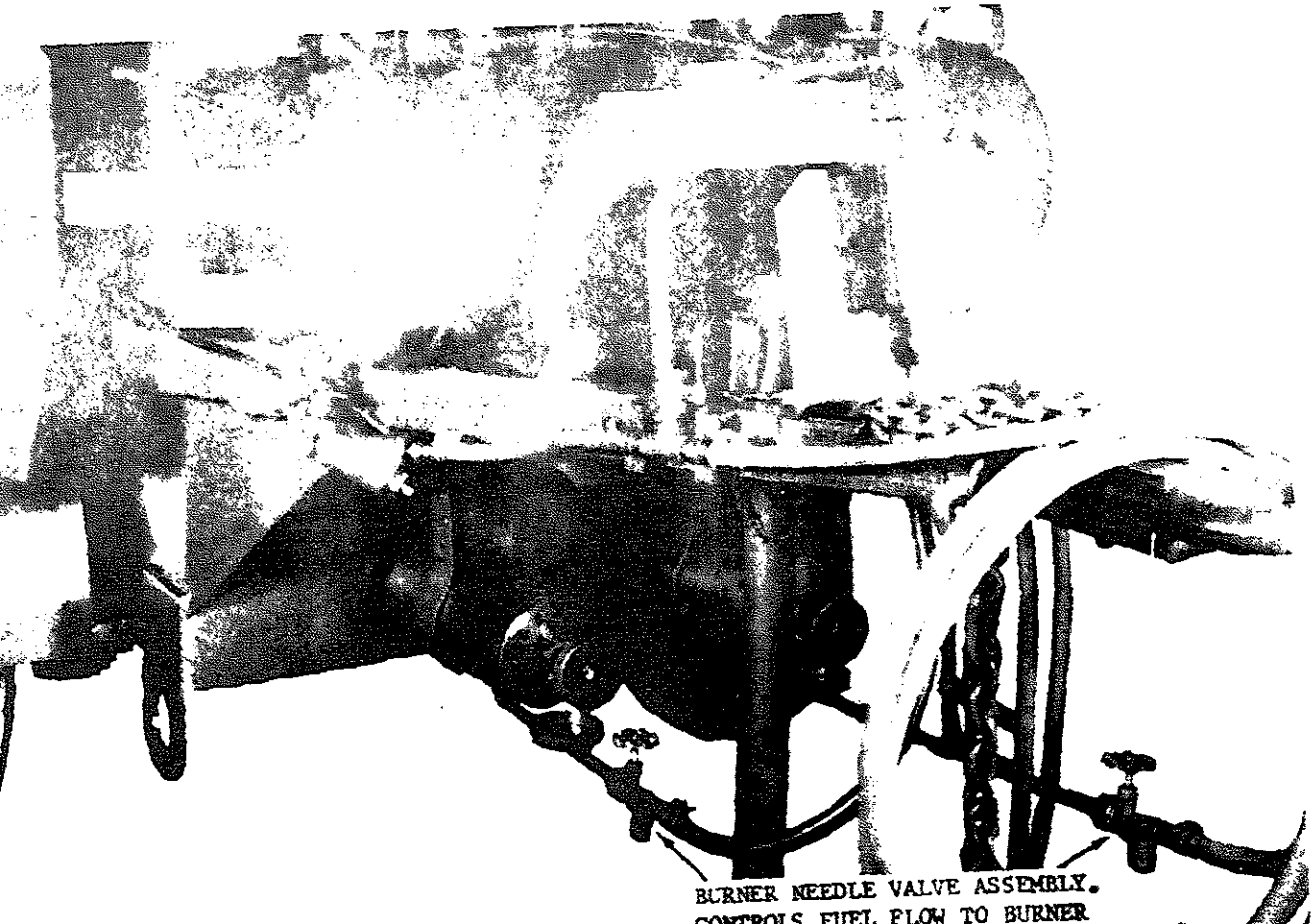


Figure 2-2. Operating controls (sheet 1 of 3).



BURNER NEEDLE VALVE ASSEMBLY.
CONTROLS FUEL FLOW TO BURNER

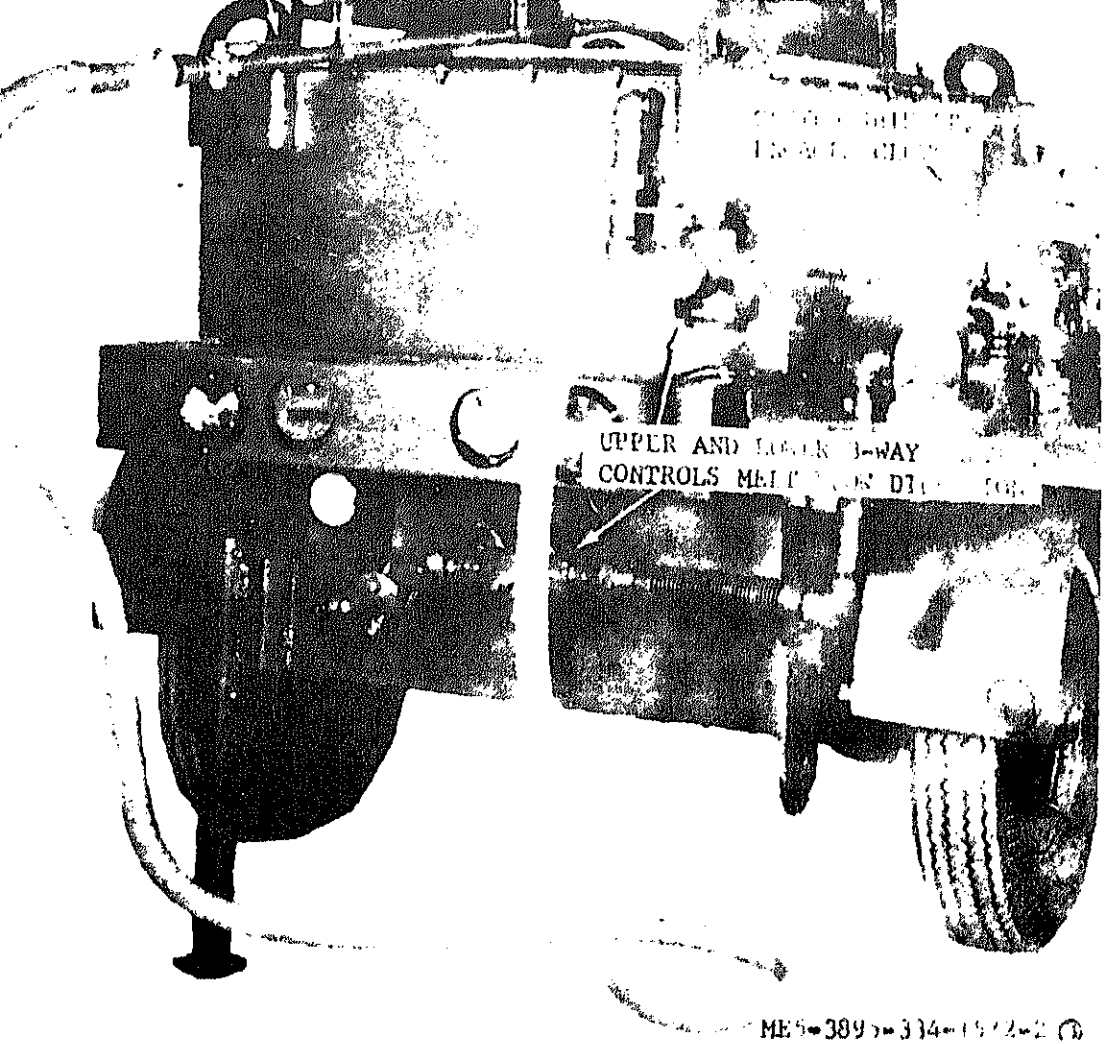
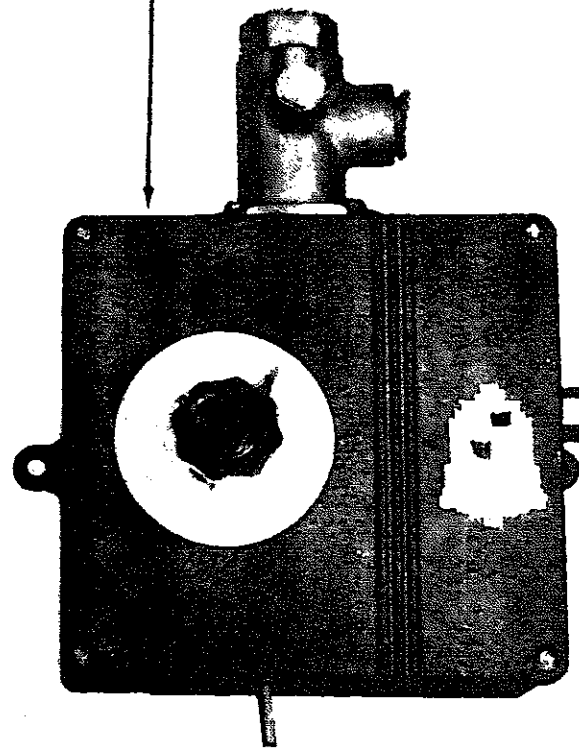
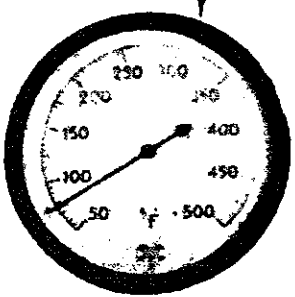


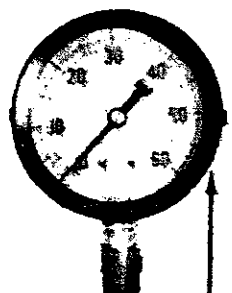
Figure 2-2. Operating controls (sheet 3 of 3).

150° TO 350° TEMPERATURE CONTROL. REGULATES MELT TEMPERATURE



THERMOMETER. INDICATES MELT TEMPERATURE





15 PSI - 30 PSI AIR PRESSURE GAUGE. GIVES FUEL TANK AIR PRESSURE

General

The instructions in this section are published for nformation and guidance of personnel responsi- or operation of the heating kettle.

It is essential that the operator know how to orm every operation of which the heating kettle pable. Paragraphs 2-9, 2-10, and 2-11, give in- tions on starting, stopping, and operating de- of the engine and heating kettle. Since nearly job presents a different problem, the operator have to vary the given procedure to fit the indi- l job.

Engine Starting Instructions

to paragraph 2-11*d*(8) for engine stopping in- ing instructions.

. Engine Stopping Instructions

to paragraph 2-11*d*:8) for engine stopping in- tions.

. Kettle Operating Instructions

Starting Instructions for Both Burners.

(1) Open stack cover (fig. 1-1). Fill burner fuel three-fourths full with clean kerosene or diesel kerosene preferred) (fig. 2-4).

Caution: **DO NOT FILL TANK OVER EE-FOURTHS FULL. RESERVED SPACE REQUIRED FOR COMPRESSED AIR. BURNER CONTROLS WILL NOT OPE PROPERLY UNLESS ADEQUATE VOLU COMPRESSED AIR IS AVAILABLE IN**

(2) Pressurize burner fuel tank with built- pump, to approximately 25 p.s.i., then open t located at bottom of fuel tank (fig. 2-4).

(3) Open valve at burner, slightly, allow to fill priming cup one-quarter full. Close valv take hand torch and soak it with fuel. Now, satuarated torch and place it in priming cup fuel located there. Allow fuel to burn until hot enough to vaporize fuel. Allow two minutes for vaporizing coil to heat. Priming have to be refilled before coils are hot en vaporize fuel. When fuel is vaporized, reopen burner one-eighth turn. If burner spits oil, clo again and allow more time for gas to generate

(4) Once burner stops spitting oil, reop until burner gives smooth burning performan

Note. Maintain air pressure in fuel tank between p.s.i. for best burner performance.

(5) Set thermostatic controller to desir ating temperature by turning knob located of the temperature controller, clockwise (fig. 2

(6) If operating heat chamber temperatu above preset temperature by 15°, the contr automatically depressurize fuel tank and flame will fail. When this happens, allow ma cool until it drops back past pre-set temp Then, repeat steps (1) thru (5) as may be requi

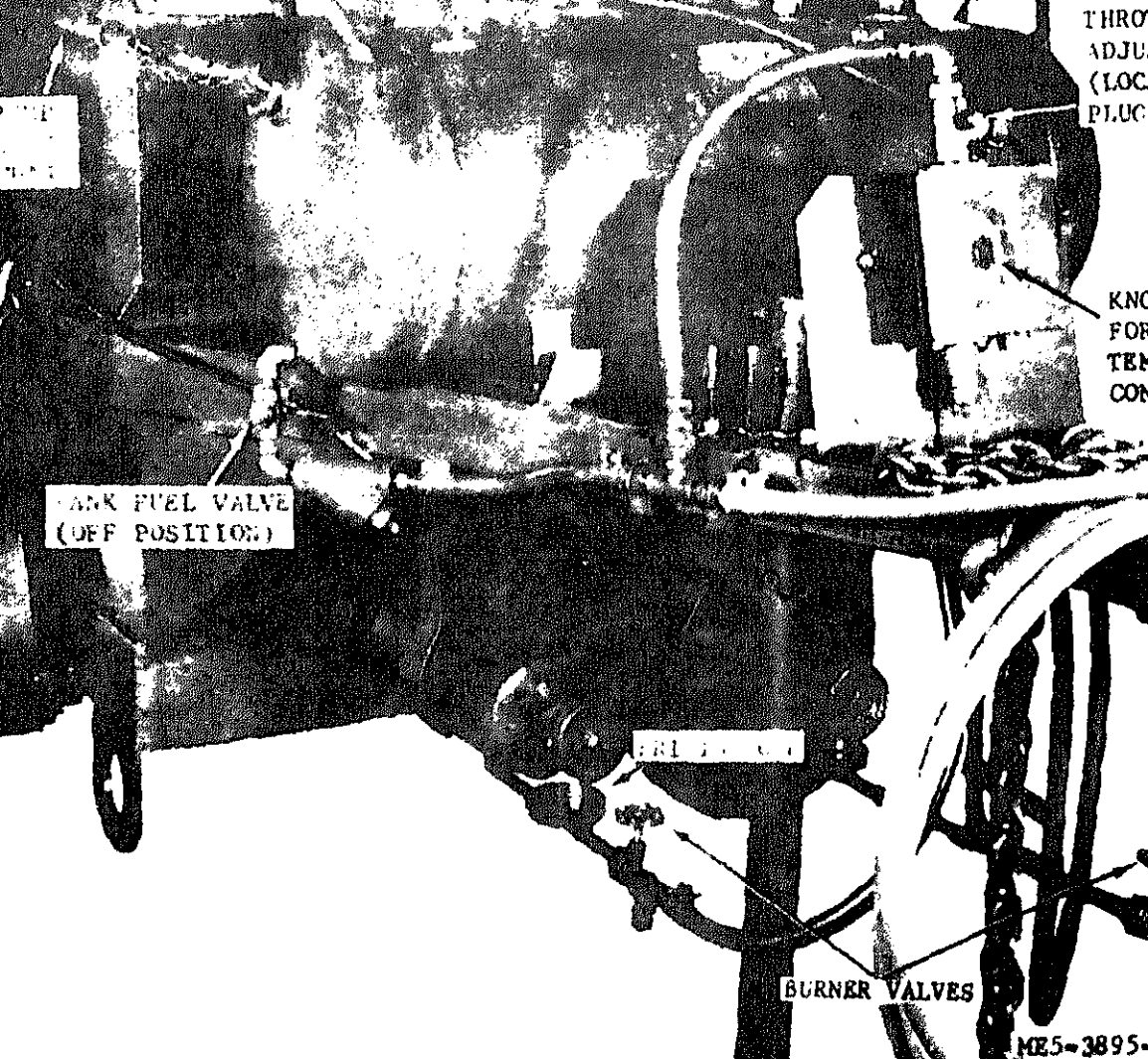


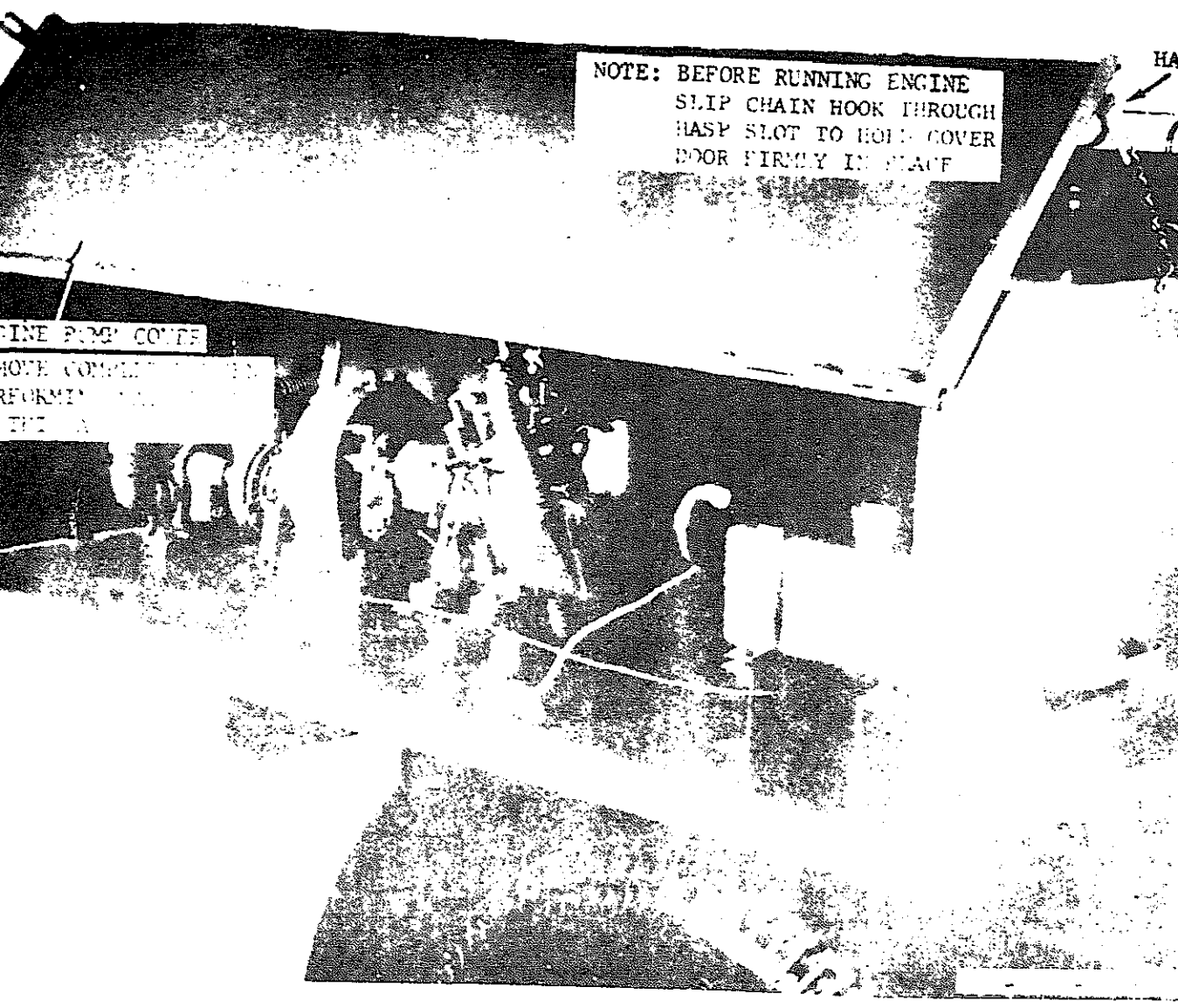
Figure 2-4. Burner system startup.

Operating Pumping System.

(1) Place levers on upper and lower three-way
es to circulate position (fig. 2-6, sheet 1).

(e) Close choke lever (fig. 2-2, sheet 1).

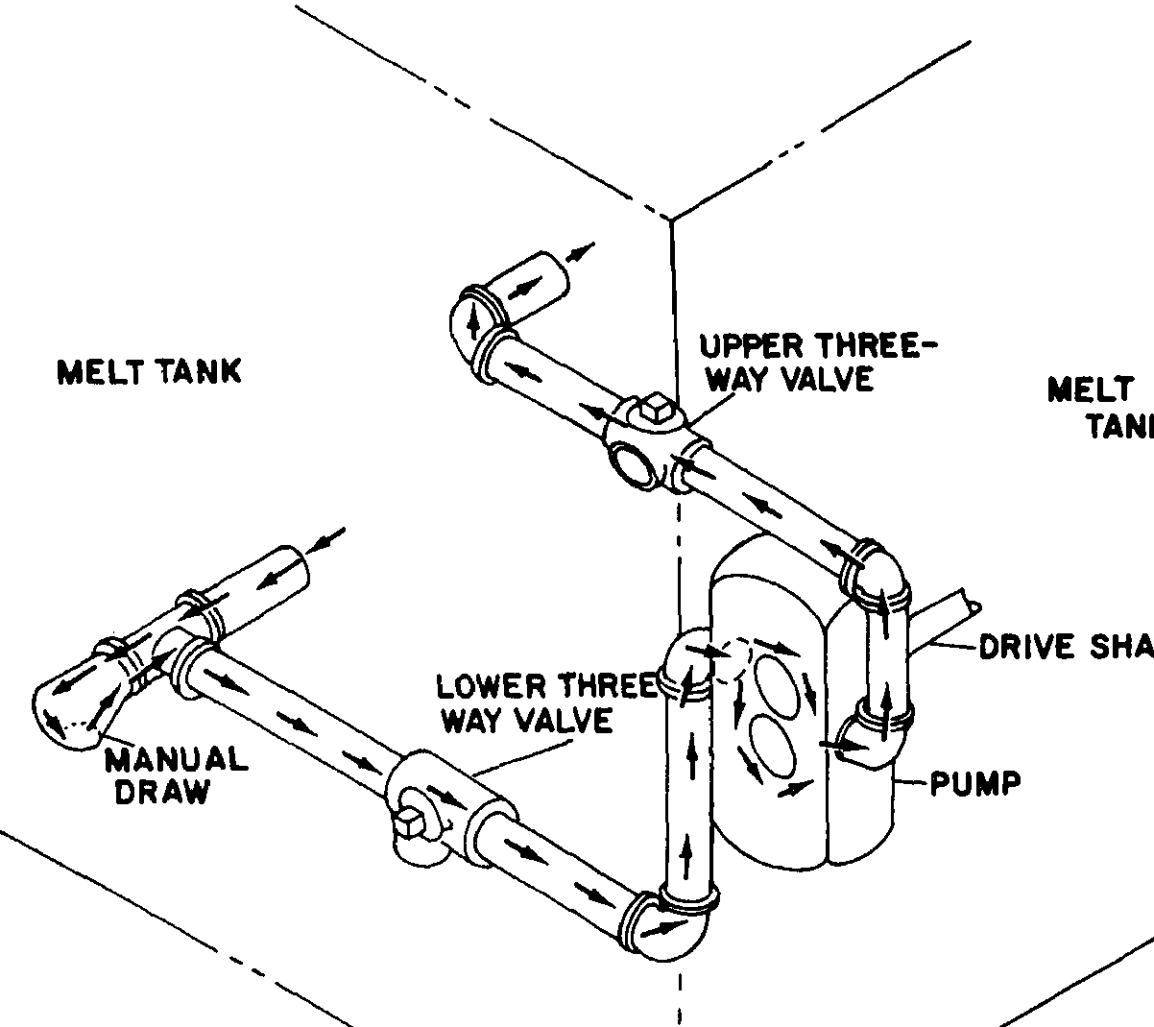
(f) Check clutch shifter to make sure
disengaged (fig. 2-7).


NOTE: BEFORE RUNNING ENGINE
SLIP CHAIN HOOK THROUGH
HASP SLOT TO HOLD COVER
DOOR FIRMLY IN PLACE

valves to spray position (fig. 2-6, sheet 2).
lace spray bar nozzles over open material
2-8).
pen control valve on spray bar and allow

tank. You are now ready to commence spraying.

Note. If spraying is interrupted for more than two m
repeat procedures in (2) and (3), above.



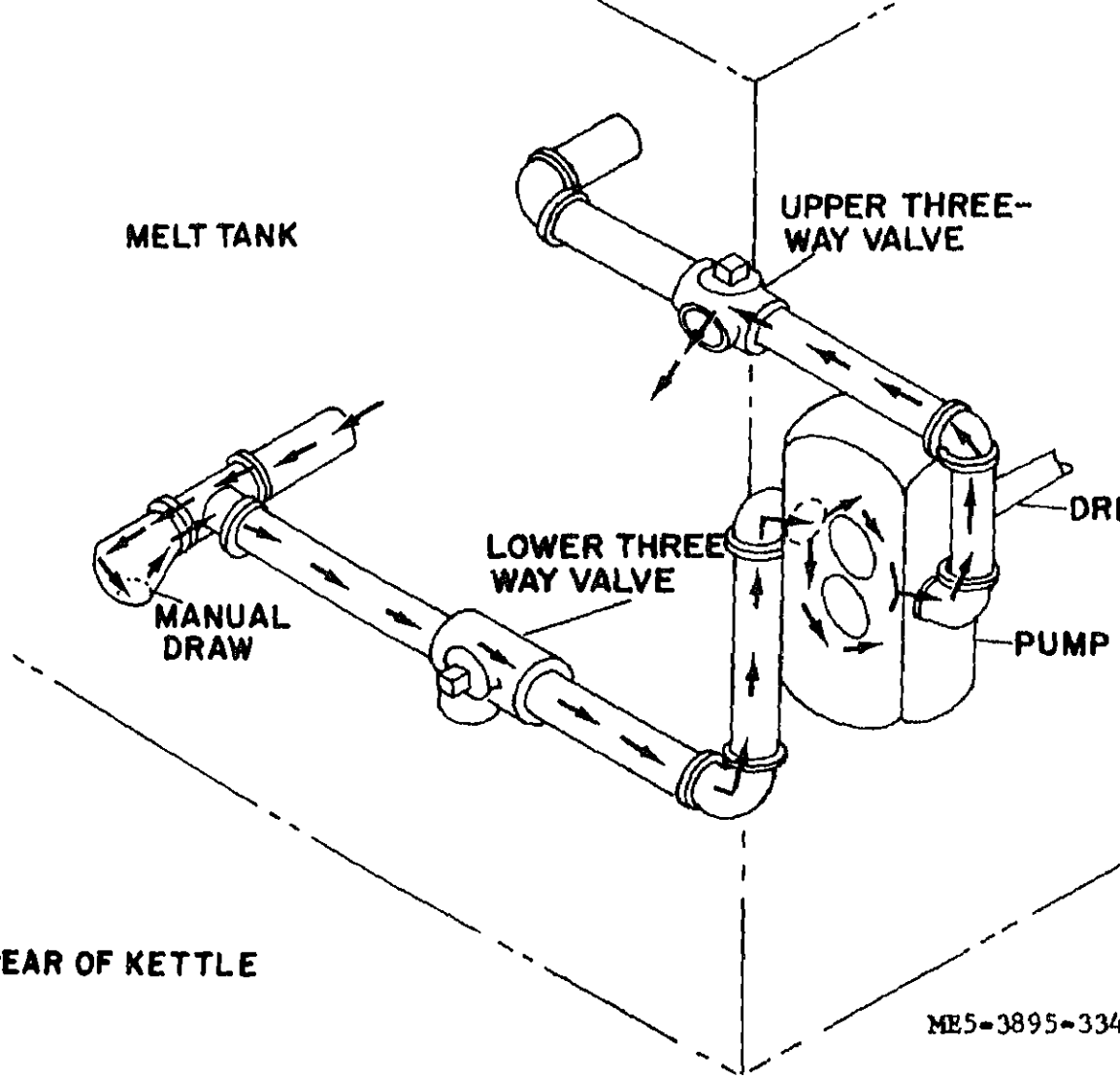


Figure 2-6. Bitumen flow chart (sheet 2 of 4).

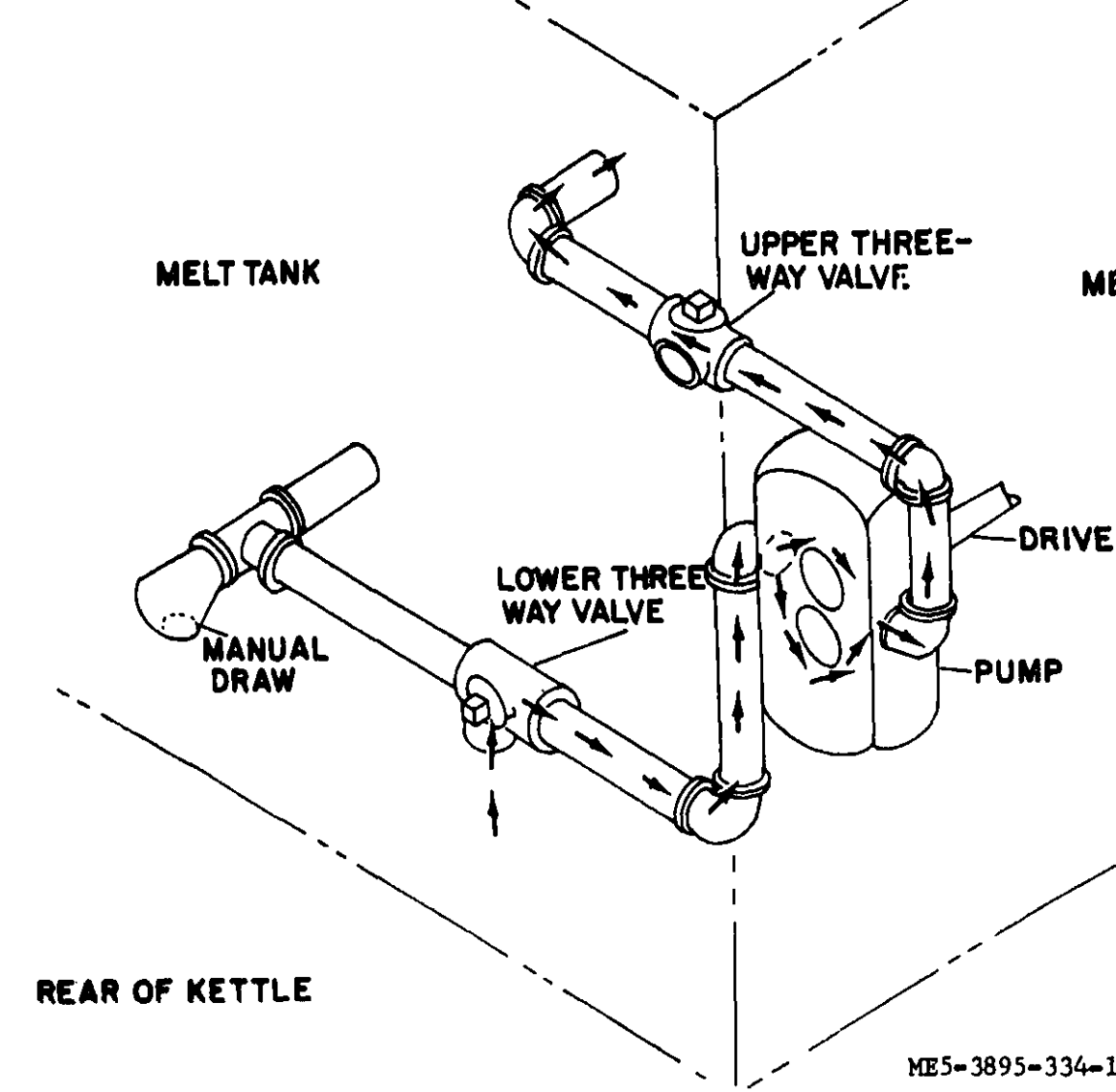


Figure 2-6. Bitumen flow chart (sheet 3 of 4).

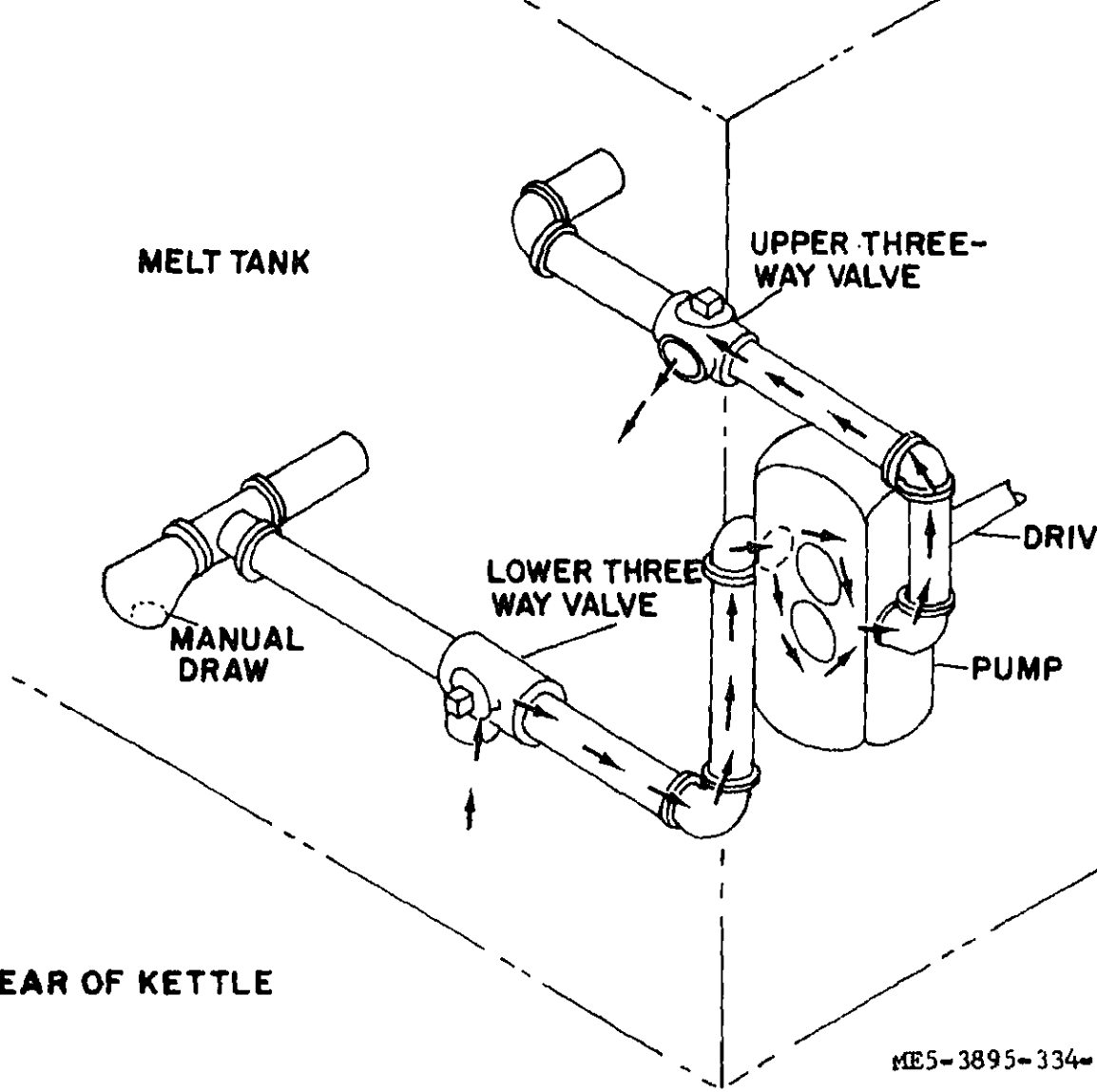
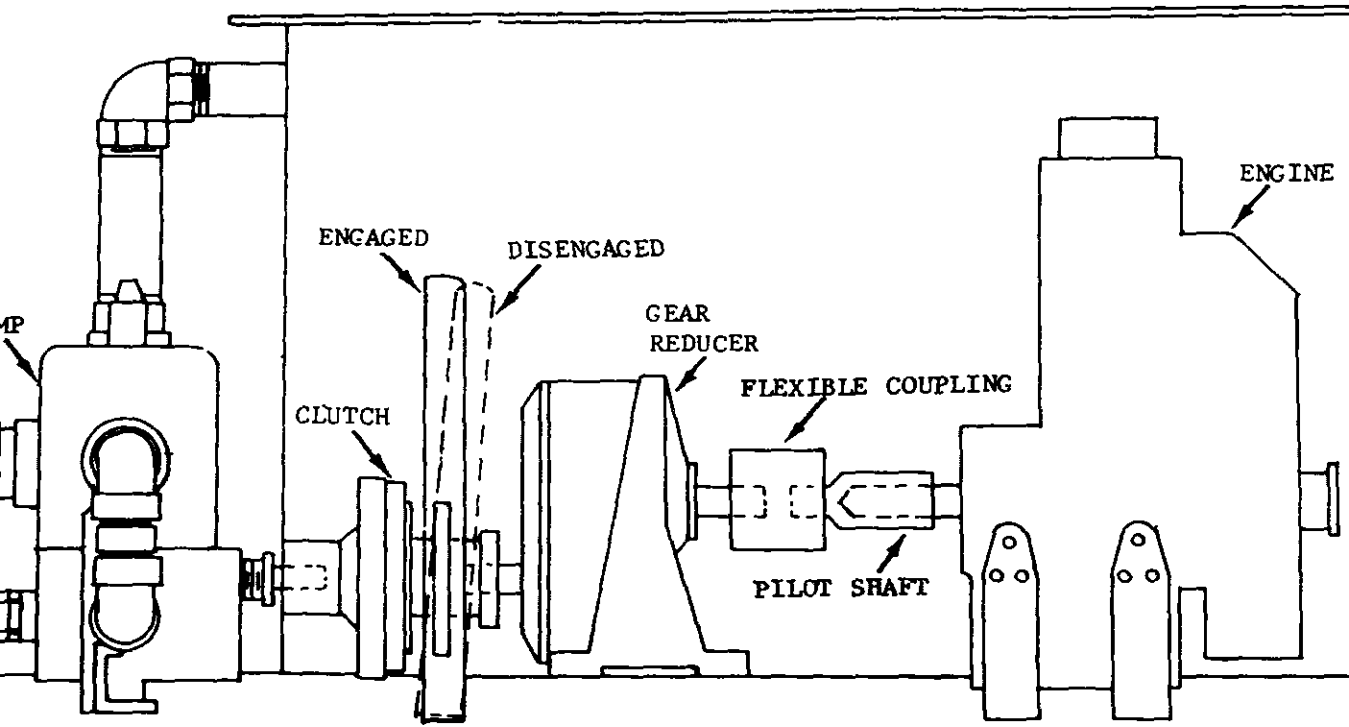


Figure 2-6. Bitumen flow chart (sheet 4 of 4).


ENGAGED
DISENGAGED
GEAR
REDUCER
FLEXIBLE COUPLING
ENGINE
CLUTCH
PILOT SHAFT

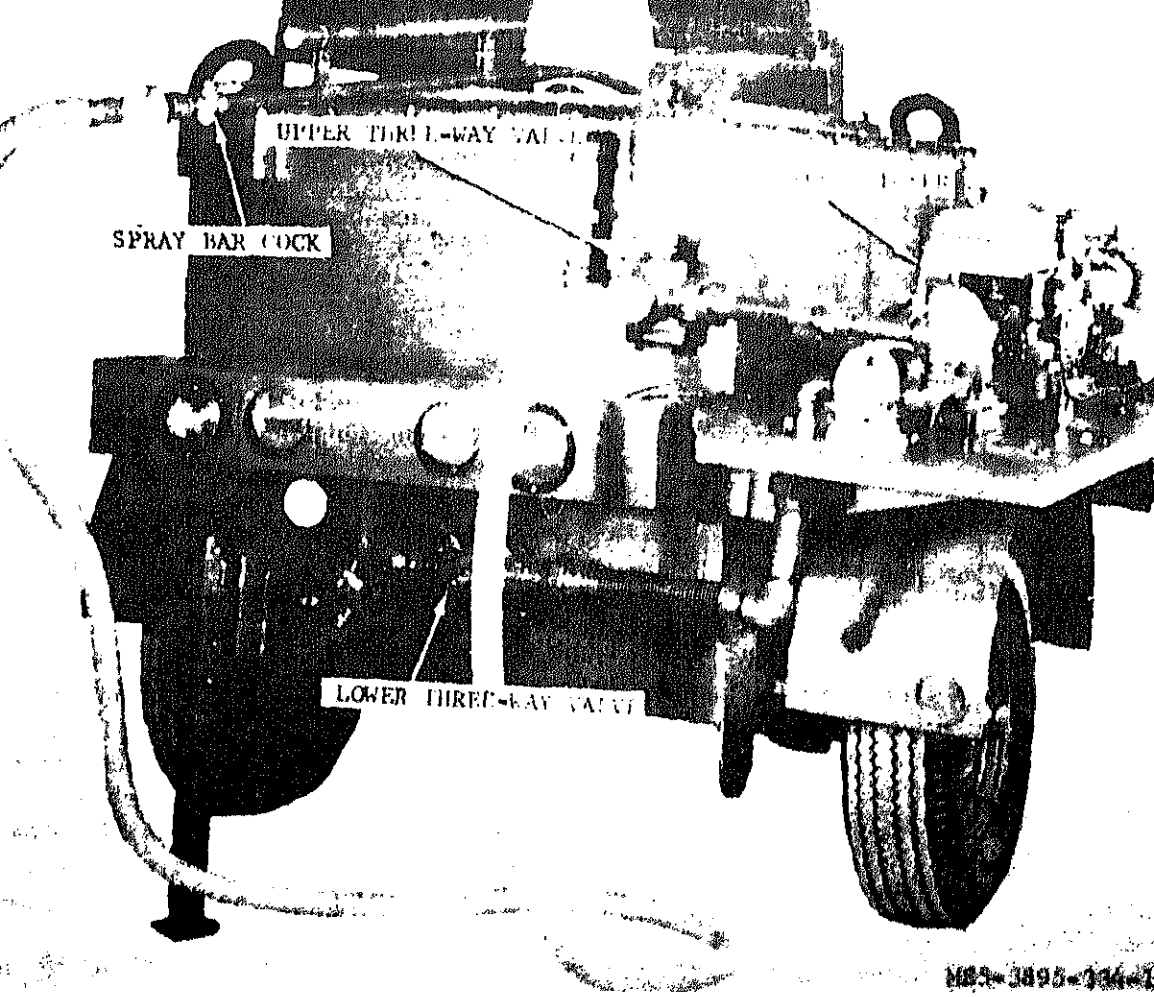


Figure 2-8. Spray controls.

eating Kettle Shutdown.

) Turn upper three-way valve to circulating
n (fig. 2-6, sheet 1).

solvent to open side of lower three-way v
2-6, sheets 3 and 4).

(6) Engage clutch; pump solvent thro

. Operation in Extreme Cold

Fuel. Keep fuel tanks as full as possible at all s to prevent condensation. Drain and service strainer frequently (TM 5-2805-256-14).

Engine. During warmup, allow engine sufficient to reach normal operating temperature before ying load.

Lubrication. Lubricate as specified in current ication order.

Pumping System. It may be necessary to heat , valves and pump, with hand torch, to establish ulation through the piping system.

. Operation in Extreme Heat

Cooling. Check cooling fins on the engine cylinder uently to make sure they are clean and undam-

Lubrication. Lubricate as specified in current ication order.

Fuel. Keep fuel tanks as full as possible at all es to prevent condensation. Drain and service strainer frequently (TM 5-2805-256-14).

4. Operation in Dusty or Sandy Areas

Air Cleaner. Refer to TM 5-2805-256-14 and serv- the air cleaner frequently to keep the engine free and and dirt.

Fuel. Strain all fuel before adding to the fuel ks. Clean the area around the fuel tank cap embly to prevent the entrance of dust and dirt ing the filling operation.

c. Lubrication. Lubricate as specified in t rent lubrication order.

2-15. Operation Under Rainy or Humid Conditions

a. General. If the unit is outside and not ating, place a canvas or other waterproof cov the unit during storms.

***Warning:* DO NOT OPERATE THE H ING KETTLE WITH THE MELTING COVER OPEN DURING RAIN. WATER TACT WITH BITUMEN NEAR OR AT ATING TEMPERATURE WILL CAUSE PLOSIONS INJURIOUS TO PERSONNEL**

b. Fuel. Keep the fuel tanks as full as poss all times to prevent condensation. Drain and the fuel strainer frequently (TM 5-2805-256-14).

c. Lubrication. Lubricate as specified in t rent lubrication order.

2-16. Operation In Salt Water Areas

a. General. Salt water causes corrosive act metal. Care must be taken to avoid contact w water; wash the unit with clean, fresh water.

b. Preservation. Paint all exposed nonp surfaces. Coat exposed parts of polished steel o ferrous material with rustproofing materia light coat of grease.

2-17. Operation at High Altitudes

Refer to TM 5-2805-256-14 for engine opera high altitude.

Section I. OPERATOR AND ORGANIZATIONAL MAINTENANCE TOOLS AND EQUIPMENT

cial Tools and Equipment

ial tool required to perform operator main-
on the burner is listed in table 3-1. Refer-
an illustration and the use of this tool are
the table. The five-digit code preceding the stock number is the Federal supply code
the manufacturer of the tool. No special
is required by organizational maintenan
forming maintenance on the kettle.

Table 3-1. Special Tools

Item	FSN or part No.	Reference		Use
		Fig.	Para	
ning needle.	(03742) TK-002	3-21	3-35	To clean burner orifice

ganizational Maintenance Repair Parts

ational maintenance repair parts are listed
trated in TM 5-3895-334-25P.

Section II. LUBRICATION

neral Lubrication Information

er to LO 5-2805-256-12 for lubrication of

er to LO 5-3895-334-12 for lubrication of
kettle.

place, away from heat. Allow no dirt, du
or foreign material to mix with the lubric
time. Keep all lubrication equipment
ready for use.

b. Cleaning. Keep all external parts not
lubrication clean from lubrication. After
rication operation, remove any excess

General

To insure that the heating kettle is ready for tion at all times, it must be inspected system- lly so that defects may be discovered and cor- d before they result in serious damage or failure. necessary preventive maintenance checks and ces to be performed are listed as described in graph 3-6.

The item numbers indicate the sequence of mini- inspection requirements. Defects discovered ng operation of the unit will be noted for future ection, to be made as soon as operation has ceased. Stop operation immediately if a def noted during operation which would dat equipment if operation were continued. All cies and shortcomings will be recorded, with the corrective action taken, on DA F (Equipment Inspection and Maintenance W at the earliest possible opportunity.

3-6. Preventive Maintenance Checks and Services

Table 3-2 lists operator and organizational p maintenance checks and services.

Table 3-2. Preventive Maintenance Checks and Services

Item No.	Interval: Operator: Daily: B	D	A	W	Org: M	Q	Item to be inspected	Procedure	Ref
							B - Before operation; D - During operation; A - After operation; W - Weekly; M - Monthly; Q - Quarterly		
	X						General visual inspection	Make a general visual inspection of the unit for cracks, breaks, loose or miss- ing bolts, nuts, etc. See that engine is securely mounted and unit set as level as possible. Inspect for tampering, damage, fuel, or bitumen leaks. Do not operate until deficiencies are corrected.	
2	X				X	X	Lubrication	Lubricate in accordance with current lubrication order.	
3	X				X	X	Engine	For preventive maintenance instruc- tions on engine, refer to TM 5-2805- 256-14.	TM 5-280
4	X				X	X	Fuel tank and cap	Inspect fuel tank for insecure mounting and leaks. Inspect cap for defective gasket or insecure fit. Secure loose mountings. Replace leaking or dam- aged tank or cap.	Fig. 3-1
5	X		X		X	X	Fuel lines	Inspect for damaged or leaking fuel line or fittings. Tighten loose fittings. Replace damaged lines.	Fig. 3-1
6						X	Coupling	Inspect coupling for looseness or dam- aged setscrews, etc. Replace damaged	Para 3-24

Daily				M	Q	Item to be inspected	Procedure	Refer
B	D	A	W					
					X	Valves	Inspect upper and lower 3-way valves for cracks, leaks, improper operation, and inadequate lubrication. Replace defective valves. Lubricate as described in the current lubrication order.	Para 3-22
					X	Coupling, spray bar assembly, piping and cock.	Inspect the pipe coupling for cracks or damage. Inspect the spray bar assembly for cracks, kinks, leaks, or other damage. Inspect spray bar cock for freedom of operation and leaks. Inspect spray nozzles for restrictions. Replace or repair damaged parts. Clean nozzles.	Para 3-3 fig. 3-
			X		X	Burner fuel tank	Inspect fuel tank for loose mounting. Inspect cap for tight seal or damage. Inspect air pump for proper operation and damaged parts. Inspect pressure relief valve for damage & proper setting. Inspect pressure gage for proper operation and damage. Replace damaged fuel tank; secure loose mountings. Replace damaged air pump parts. Lubricate air pump. Replace defective pressure relief valve or pressure gage.	Para 3-3 fig. 3-2
					X	Burner fuel lines	Inspect fuel lines and fittings for damage or leaks. Clean filter and replace any damaged parts. Replace damaged fittings, hose or pipe. Tighten leaking connections.	Para 3-3 fig. 3-2
			X		X	Burner assemblies.	Remove and inspect burner strainer valve for dirt and damage. Inspect burner for cracks, breaks, or damage. Clean or replace strainer valve. Clean burner coils and jets. Replace damaged parts.	Para 3-3 fig. 3-2
					X	Thermostatic control	Inspect instrument for damage. Pressurize tank, turn temperature control knob counterclockwise to determine if valve opens to bleed off air pressure at approximately 15° F above ambient temperature.	Para 3-3 fig. 3-2
		X		X	X	Air lines	Inspect air line for leaks, or damaged parts. Inspect thermal element and capillary for damage. Replace damaged or malfunctioning instrument.	Fig. 3-20

D-During operation W-Weekly Q-Quarterly

Item Number	Operator				Org		Item to be inspected	Procedure	
	Daily								
	B	D	A	W	M	Q			
								or looseness. Tighten or replace all loose or missing hardware. Straighten all minor dents. Report cracks, broken welds or misalinement to field maintenance. Report a defective tank to field maintenance. Repair or replace a damaged cover as necessary. Tighten or replace fusible link.	
18						X	Leg stands	Inspect front and rear leg stands for cracks, bends, and missing pins or chains. Repair or replace damaged leg stands. Replace missing or damaged pins and chains.	Fig. 3
19						X	Springs and shackle bolts	Inspect the springs for misalinement, and shifted, bent, or broken leaves. Inspect for loose or missing hardware. Inspect all shackle bolts for damage. Tighten or replace all loose or missing hardware. Replace all defective springs or shackle bolts.	Para 3 fig.
20						X	Axle	Inspect the axle for loose or missing mounting hardware. Inspect the axle for bent condition. Tighten or replace all loose or missing hardware. Replace a defective axle.	Para 3 fig.
21				X		X	Wheels	Inspect the wheels for improper operating condition. Inspect for loose or missing mounting bolts and nuts. Inspect for defective grease seals. Tighten or replace all loose or missing mounting hardware. Replace a defective wheel or grease seal.	Para 3 fig.
22				X		X	Tires	Inspect the tires for improper air pressure, excessive cuts, and wear, embedded foreign material, and missing valve caps. Remove all foreign material. Inflate tires to 45 psi. Replace missing valve caps and defective tires.	Para 3 fig.
23						X	Lights and wiring.	Inspect the lamps for unserviceability. Inspect the line for dirt, breaks, or other damage. Inspect reflectors for discoloration, breakage, or insecure mounting. Inspect all wiring for defective installation, corroded or broken	Para 3 fig.

Daily				M	Q	Item to be inspected	Procedure	Refer
B	D	A	W					
					X	Appearance	Inspect the kettle for cleanliness, legibility of markings, and condition of paint. Correct all deficiencies or report them to field maintenance.	

Section IV. OPERATOR MAINTENANCE

ngine

o TM 5-2805-256-14.

hecks and Services

m the following inspections and services as

uel System

fuel lines and fuel tank cap. If tank cap is defective, replace when needed.

Fuel Filters

fuel filters for obstructions.

Electrical System

tail and marker lamp assembly and trailer g cable for non-operation or surface damage.

Power Transfer

vent plug on gear reducer. Inspect flexible g. Remove restrictions from vent plug.

Wheels and Track

wheel assembly, tires and tubes. Service d tubes as needed.

Landing Gear, Leveling Jacks

leveling jacks for proper leveling when needed.

3-15. Gages (Non-Electrical)

Inspect thermometer and air pressure gage f readings.

3-16. Pumps

Inspect pressure relief valve. Adjust nut when needed. Service cone and collar shifte pump assembly as needed.

3-17. Fuel Tank (Burner)

Inspect safety valve assembly, air line, p fittings; adjust the pressure regulator as Service the fuel valve shutoff and fuel tank cap assembly as needed. Replace fill cap ass needed.

3-18. Material Spray Bar

Inspect quick-action coupling and spray proper ease of operation. Service material s and spray nozzle for proper flow. Replace s zle as needed.

3-19. Material Piping and Accessories

Inspect fusible link, all piping and fittings. spect the quick-action couplings and spray h ice both upper and lower three-way valves melting vat.

quantity inadequate for preheating er.	*a.* Burner shutoff valve closed. *b.* Burner shutoff valve strainer clogged. *c.* Main fuel strainer clogged. *d.* Burner jet plugged. *e.* Fuel tank not pressurized. *f.* Water in fuel tank. *g.* Relief valve out of adjustment or defective.	*a.* Open burner shutoff valve. *b.* Remove and clean strainer screen (7, fig. 3-21). *c.* Remove and clean strainer screen (f 3-20) (para 3-35*f*). *d.* Clean jet (fig. 3-21) (para 3-17). *e.* Pressurize fuel tank to 25 psi (fig. 2- (para 2-11*a*). *f.* Drain fuel tank, replenish fuel supp *g.* *Adjust or replace relief valve (fig. (para 3-35*b*).
ner fails to ignite or stops burning.	*a.* Burner jet plugged. *b.* Fuel tank pressure inadequate. *c.* Burner shutoff valve strainer clogged. *d.* Main fuel strainer clogged. *e.* Water in fuel tank. *f.* Burner coil excessively carboned. *g.* Thermostat setting below or at material temperature.	*a.* Clean jet (fig. 3-20) (para 3-17). *b.* Pressurize fuel tank to 25 psi (fig. 2 (para 2-11*a*). *c.* Remove and clean strainer screen (f 3-21) (para 3-35*e*). *d.* Remove and clean main strainer sc (fig. 3-20) (para 3-35*f*). *e.* Drain fuel tank, replenish fuel tank *f.* *Remove burner and clean coils (fig (para 3-35*c*). *g.* Set thermostat at desired operatin temperature (fig. 2-4) (para 2-11*a*).
rner flame insufficient or fluctuating	*a.* Wrong or poor grade of fuel. *b.* Water in fuel tank. *c.* Fuel tank pressure low. *d.* Burner jet plugged. *e.* Burner coil excessively carboned. *f.* Fuel surge in line. *g.* Burner shutoff valve strainer clogged. *h.* Main fuel strainer clogged.	*a.* Drain fuel tank and replenish fuel *b.* Drain fuel tank and replenish fuel *c.* Pressurize fuel tank to 25 psi (fig. 2 (para 2-11*a*). *d.* Clean jet (fig. 3-21) (para 3-17). *e.* *Remove burner and clean coil (fig (para 3-35*c*). *f.* Preheat the burner (fig. 2-4) (para 2 *g.* Remove and clean strainer screen (3-21) (para 3-35*e*). *h.* Remove and clean main strainer sc (fig. 3-21) (para 3-35*f*).
urner flame fails to reduce when oper operating temperature is reached.	*a.* Thermometer and thermostat are at opposite ends of melting tank. Heat may not be uniform throughout. *b.* Thermostat heat sensor defective or damaged.	*a.* Circulate bitumen (fig. 2-6) (para 2 *b.* *Replace thermal sensing element 3-21) (para 3-35*g*).
urner flame fails after operating mperature is reached.	*a.* Burner shutoff valve partially closed. *b.* Fuel tank pressure low. *c.* Throttling valve not open sufficiently.	*a.* Open burner shutoff valve. *b.* Pressurize fuel tank to 25 psi (fig. (para 2-11*a*). *c.* *Turn throttle valve adjusting scre clockwise, slowly, until desired res occur (fig. 2-4).

ng kettle smoke excessively black.	a. Improper preheating procedure.	a. Refer to paragraph 2-11a.
	b. Burner flame fluctuates.	b. Refer to item 3, above.
	c. Melted bitumen leaking into combustion chamber.	c. Inspect melting compartment f report leaks noted to DS maint
nometer indicates wrong rature.	a. Protective well covered by layer of carbon.	a. Clean protective well.
	b. Defective thermometer.	b. Replace the thermometer.
en material fails to flow from	a. Bitumen material not hot enough.	a. Heat to proper temperature.
	b. Drain clogged.	b. Clear drain by heating with ha
p fails to operate or operates rly.	a. Bitumen material not hot enough.	a. Heat to proper temperature.
	b. Cold bitumen material in line or valves.	b. Warm lines, valves and pump hand torch. Jog clutch and con warming until pump runs free
	c. Bitumen level in melting tank below pump suction connection.	c. Replenish melting kettle with proper operating level.
	d. Relief valve improperly adjusted or defective.	d. *Adjust the relief valve (fig. 3- replace relief valve (fig. 3-16) (
	e. Pump defective.	e. *Replace pump (fig. 3-15) (para
h fails to operate or operates perly.	a. Clutch out of adjustment.	a. *Adjust clutch (fig. 3-8) (para 3
	b. Clutch defective.	b. *Replace clutch.
reducer fails to operate.	Gear reducer damaged or defective.	*Replace gear reducer (fig. 3-7) (
ts fail to operate or operate perly.	a. Lamp burned out.	a. *Replace lamp.
	b. Loose connections.	b. *See that all ferrules are firml the proper sockets (wiring diag fig. 1-3).
	c. Ground lead loose or missing.	c. *Tighten or replace ground lea
	d. Lamp assembly defective.	d. *Replace lamp assembly (fig. 3 (para 3-23a).
	e. Wiring harness damaged or defective.	e. Repair or replace wiring harne 3-4) (para 3-23c).
	f. Trailer coupling cable damaged or defective.	f. *Replace cable (fig. 3-5) (para 3
	g. Towing vehicle electrical system defective.	g. Report condition to operator of vehicle.
er does not track properly.	a. Tire pressure low.	a. *Inflate tires to 45 psi.
	b. U-bolts loose or broken.	b. *Tighten or replace U-bolts (fi (para 5-15).
	c. Spring or center bolt broken.	c. *Replace spring or center bolt (para 5-15).
	d. Shackle bolt loose missing, or broken.	d. *Tighten or replace shackle bo 3-11) (para 3-7).
wear excessive.	a. Loose hub bolts.	a. *Tighten hub bolts (fig. 3-10) (
	b. Wheel bent.	b. *Replace wheel (fig. 3-10) (par
	c. Axle bent.	c. *Remove and straighten, or re (fig. 3-11) (para 5-15).

...t defective	...shut down automatic burner by closing valve at burner. Fire kettle with manually controlled burner.

Section VII. ORGANIZATIONAL MAINTENANCE PROCEDURES

. Engine

Engine Maintenance. For operator and organiza-l maintenance of the engine, refer to TM 5-2805-4.

Engine Removal and Installation.

(1) Refer to figure 3-1 for fuel line and filter, re-al and installation.

(2) Refer to figure 3-1 for engine, removal and allation. Refer to (8, fig. 3-6) for adaptor shaft oval.

3-23. Electrical System

a. Refer to figure 3-2 for blackout light a removal and installation.

b. Refer to figure 3-3 for tail, turn, stop sembly, removal and installation.

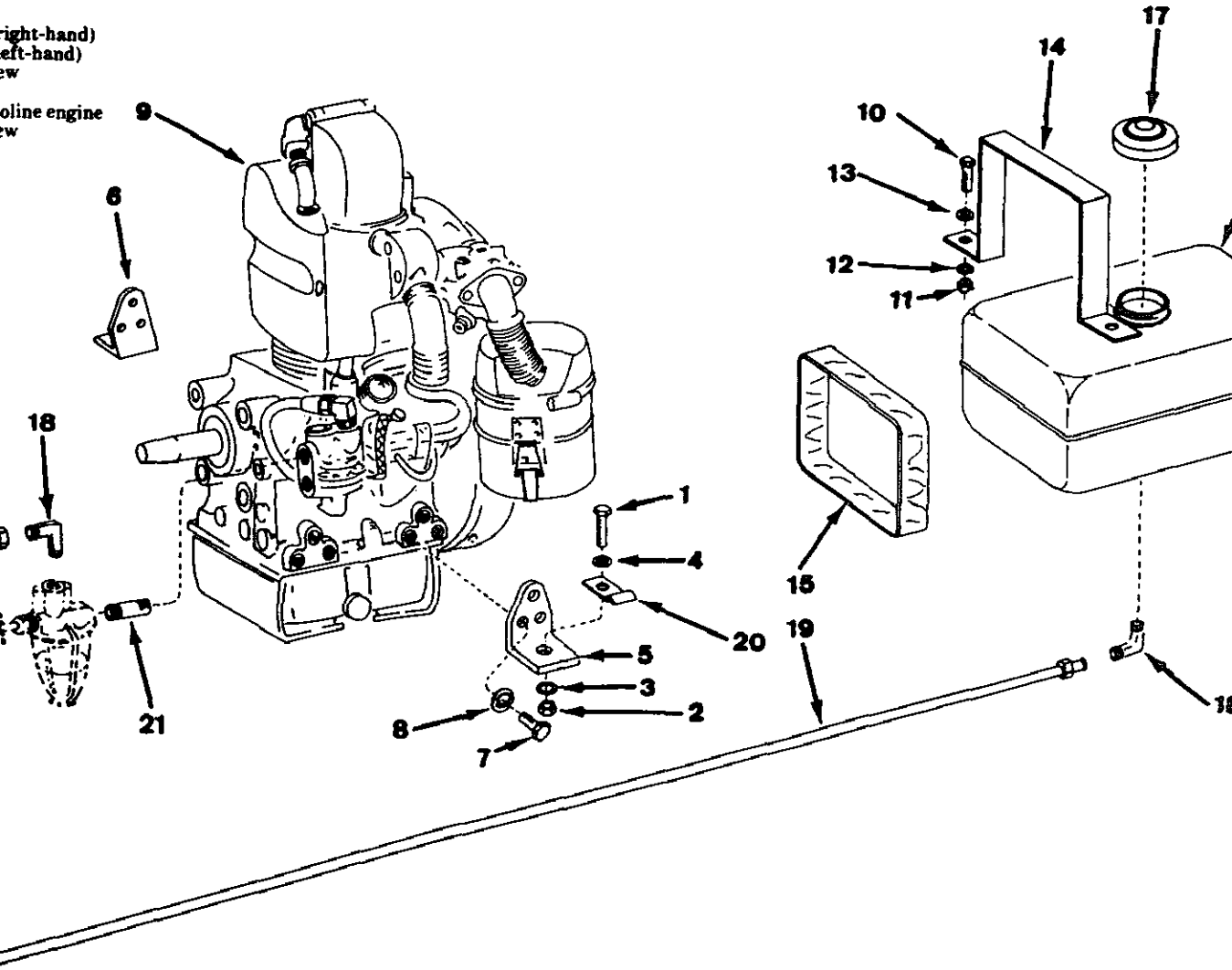
c. Refer to figures 3-2, 3-3, for bulb rem installation.

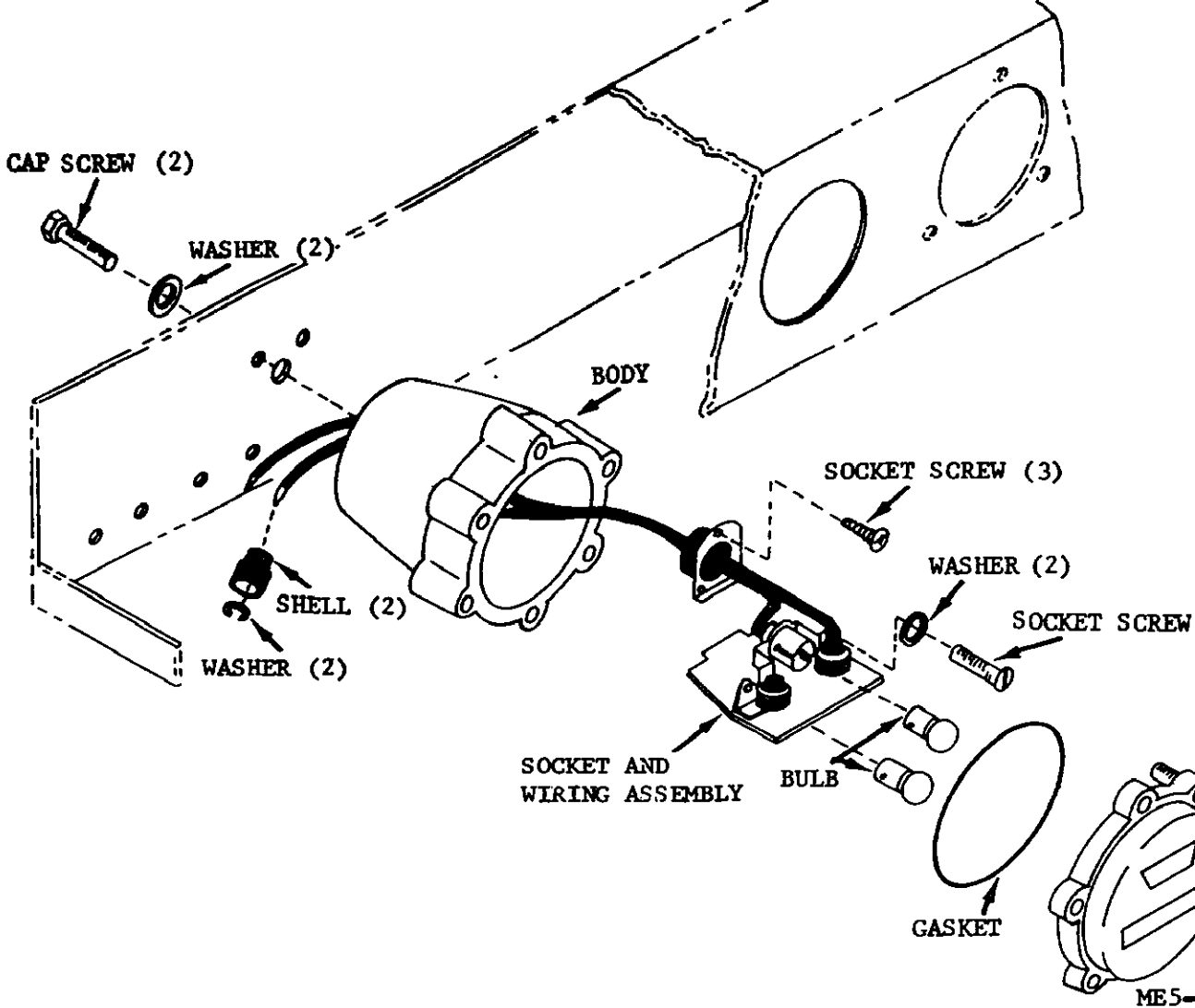
d. Refer to figure 3-4 for wiring harness and installation.

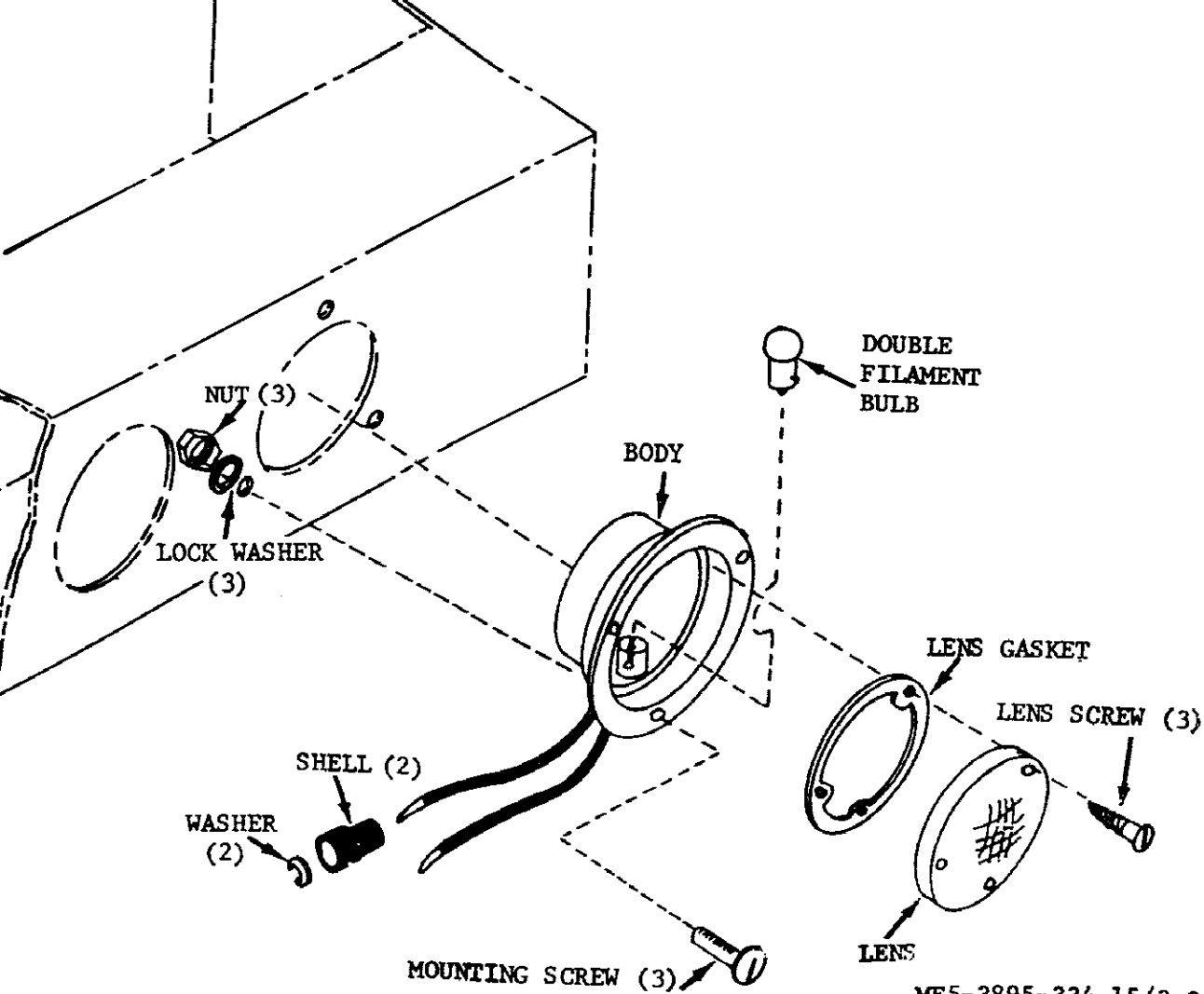
e. Refer to figure 3-5 for trailer coupling moval and installation.

ight-hand)
eft-hand)
ew

oline engine
ew




CAP SCREW (2)
WASHER (2)
BODY
SOCKET SCREW (3)
WASHER (2)
SOCKET SCREW
SHELL (2)
WASHER (2)
SOCKET AND
WIRING ASSEMBLY
BULB
GASKET



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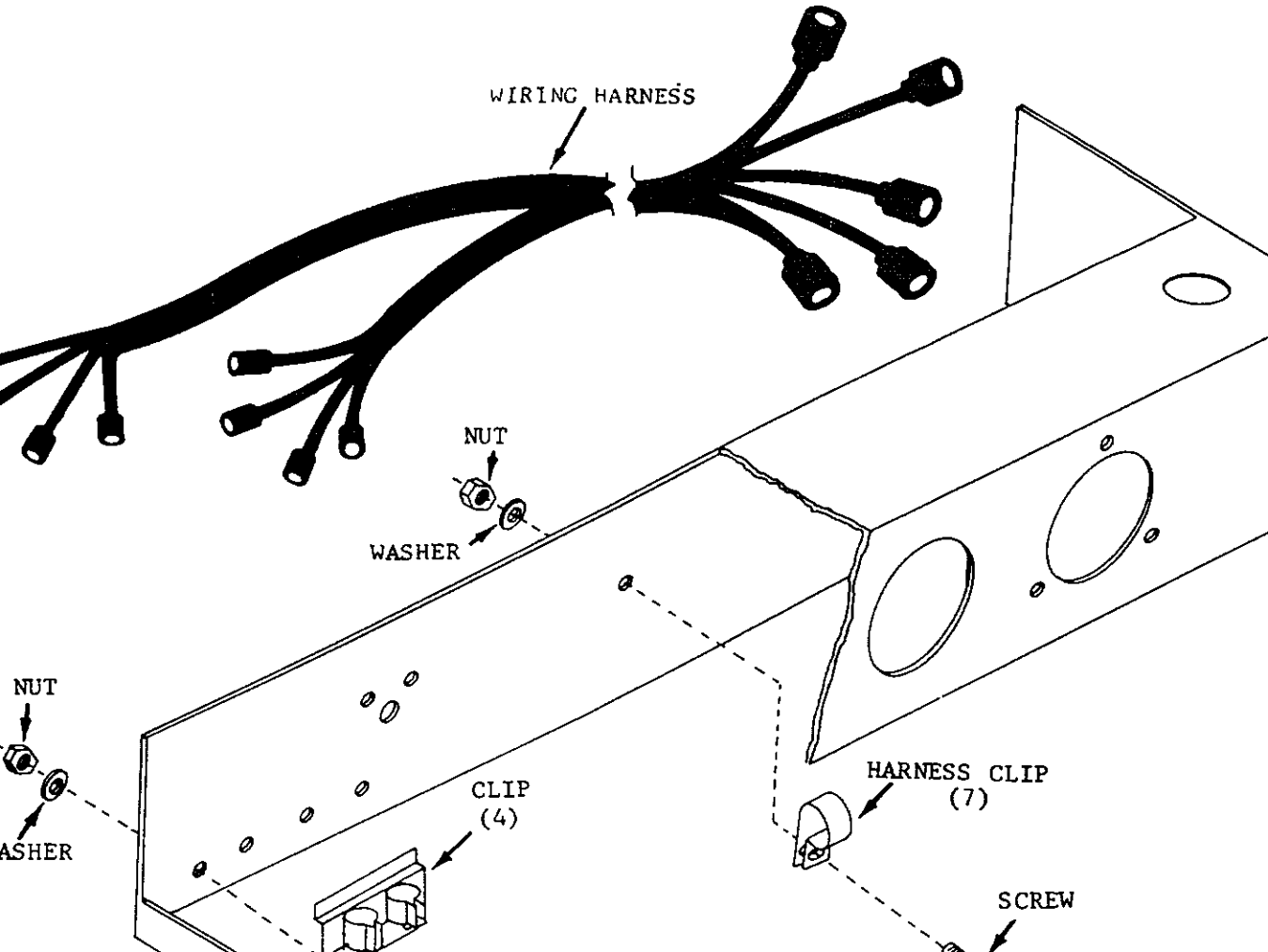

WIRING HARNESS
NUT
WASHER
NUT
ASHER
CLIP
(4)
HARNESS CLIP
(7)
SCREW

b. Refer to figure 3-7 for clutch assembly, removal and installation.

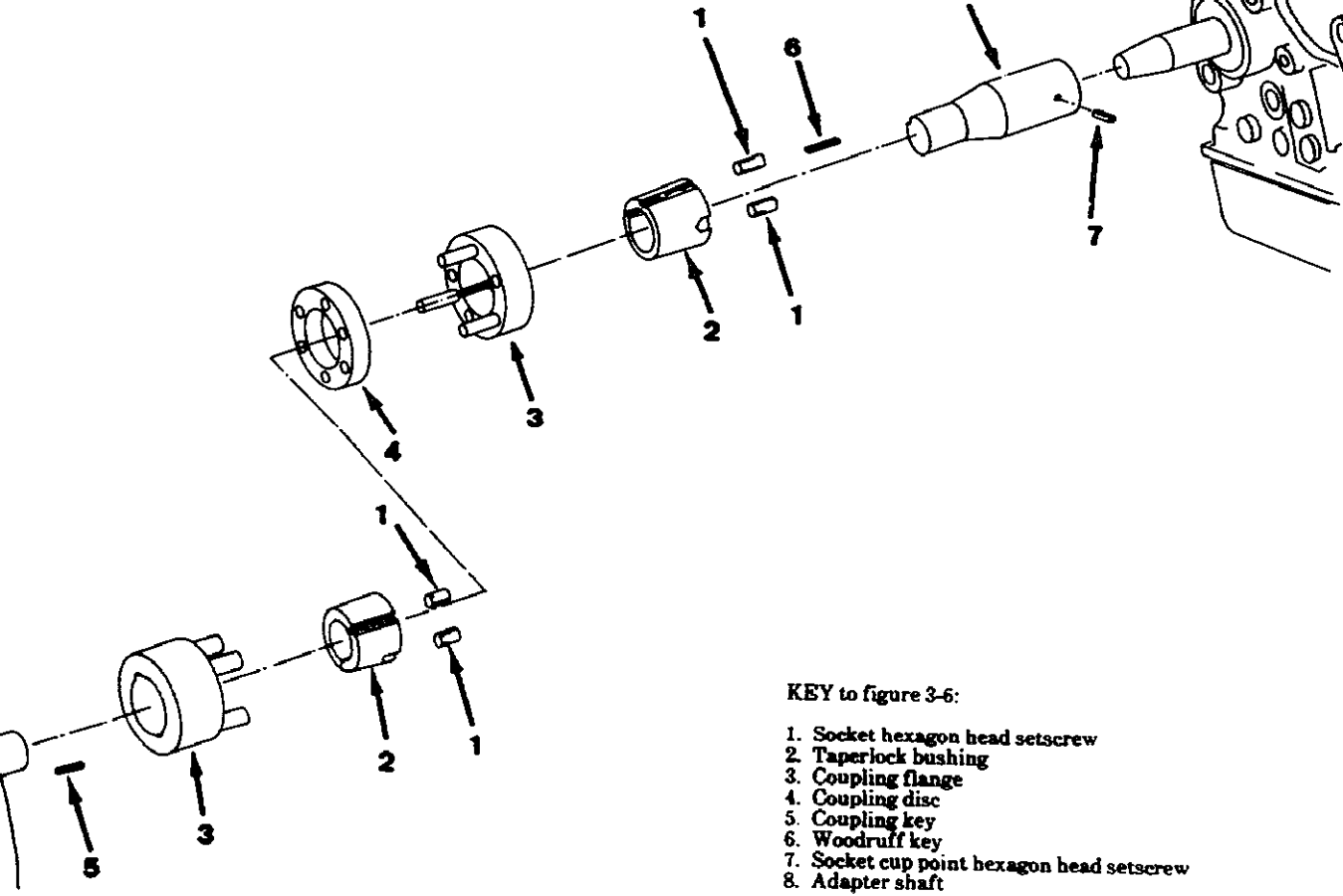
(1) Refer to figure 3-8 for clutch assembly adjustment.

(2) Refer to figure 3-9 for clutch shifter, removal and installation.

(1) Refer to paragraph 3-24c
ling, removal and installation.

(2) Refer to paragraph 3-24*b*(2
removal and installation.

(3) Refer to figure 3-7 for gea
removal and installation.

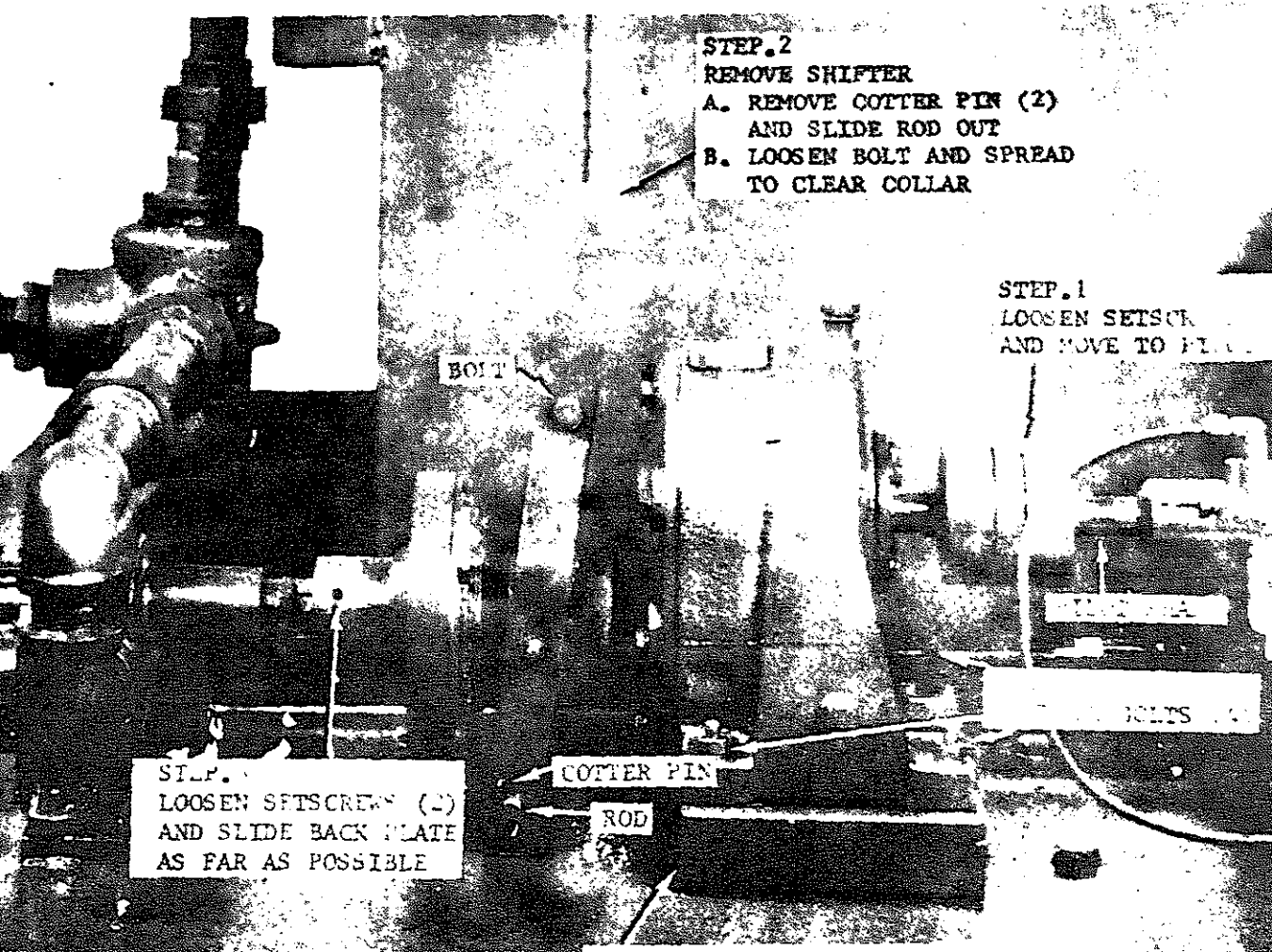


KEY to figure 3-6:

1. Socket hexagon head setscrew
2. Taperlock bushing
3. Coupling flange
4. Coupling disc
5. Coupling key
6. Woodruff key
7. Socket cup point hexagon head setscrew
8. Adapter shaft

ME5-3895-334-15/3-

Figure 3-6. Flexible coupling, removal, disassembly, installation and assembly.


STEP.2
REMOVE SHIFTER
A. REMOVE COTTER PIN (2)
AND SLIDE ROD OUT
B. LOOSEN BOLT AND SPREAD
TO CLEAR COLLAR
STEP.1
LOOSEN SETSCR
AND MOVE TO
BOLT
STEP.
LOOSEN SETSCREWS (2)
AND SLIDE BACK PLATE
AS FAR AS POSSIBLE
COTTER PIN
ROD

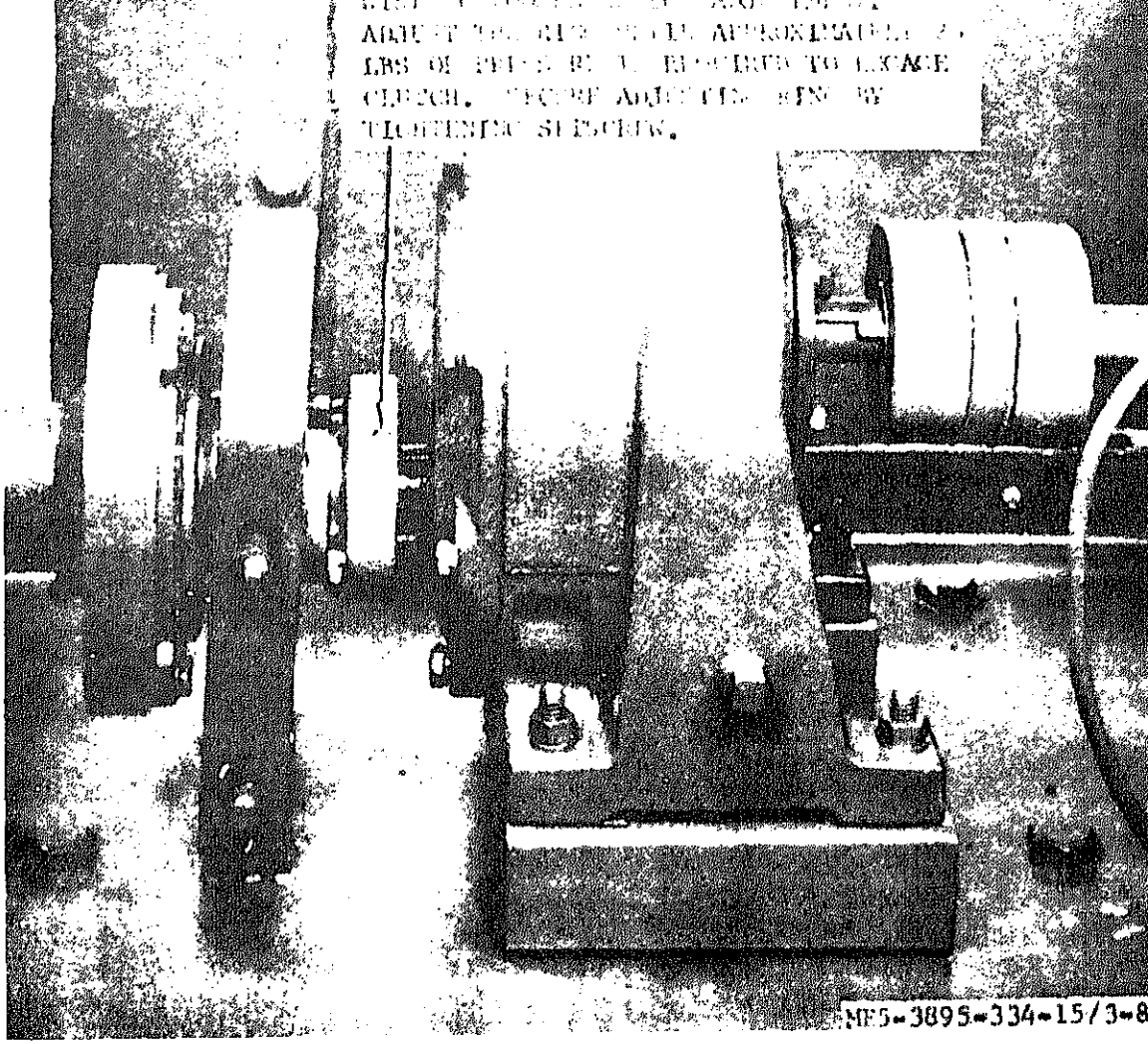
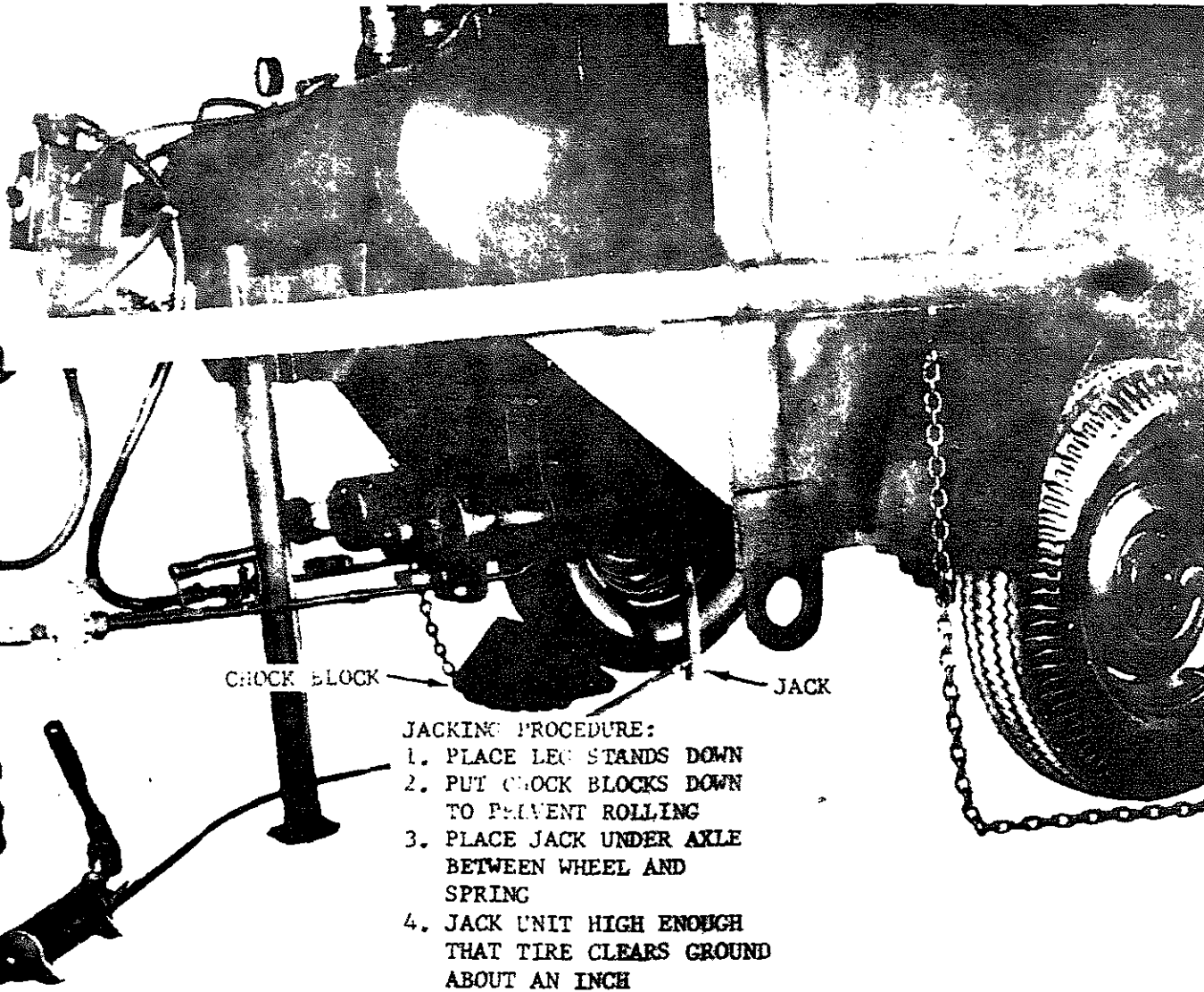
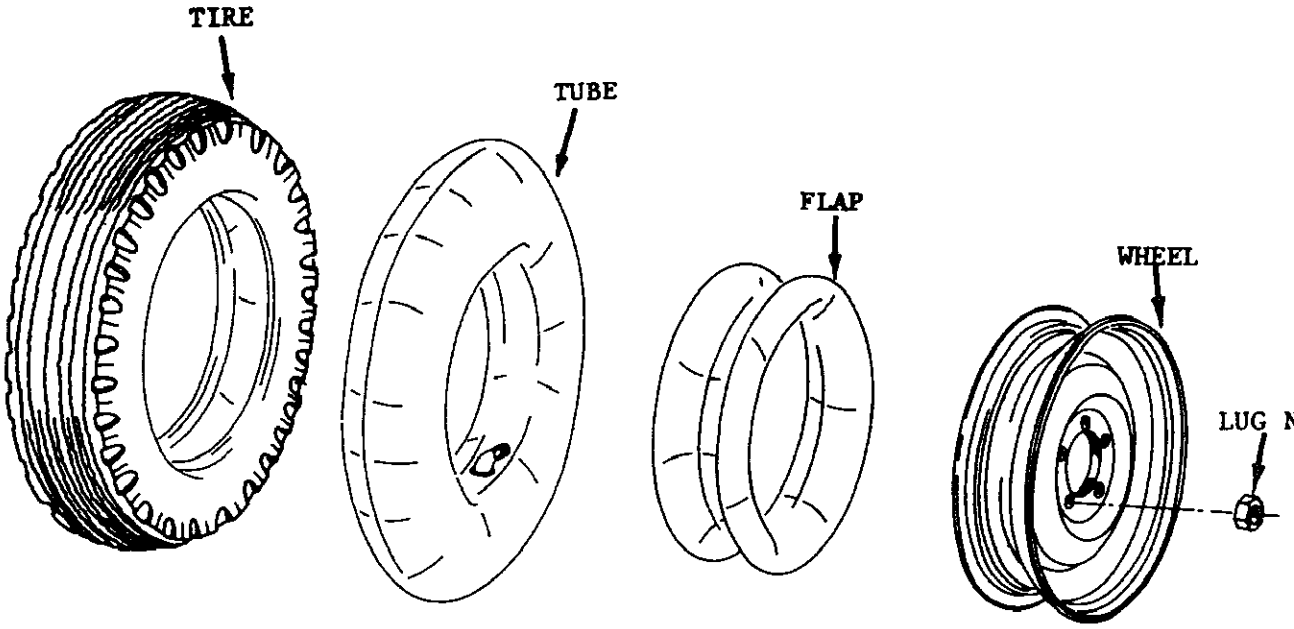


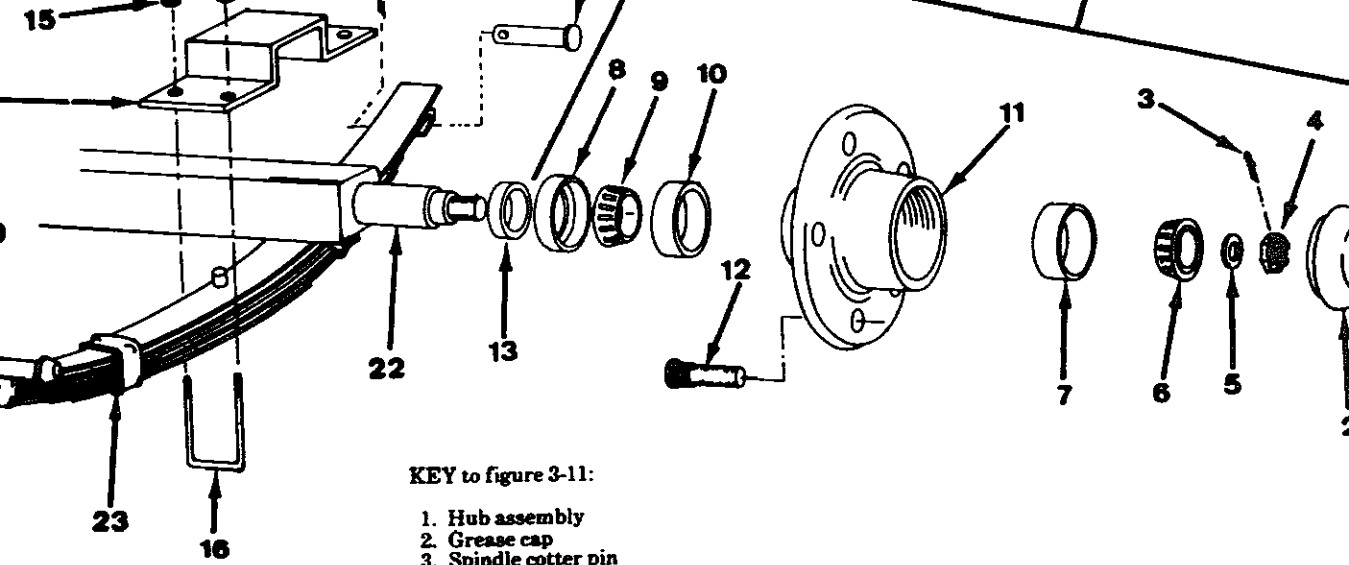
Figure 8-8. Clutch assembly, adjusting procedures.



JACKING PROCEDURE:

1. PLACE LEG STANDS DOWN
2. PUT CHOCK BLOCKS DOWN TO PREVENT ROLLING
3. PLACE JACK UNDER AXLE BETWEEN WHEEL AND SPRING
4. JACK UNIT HIGH ENOUGH THAT TIRE CLEARS GROUND ABOUT AN INCH


TIRE
TUBE
FLAP
WHEEL
LUG N



KEY to figure 3-11:

1. Hub assembly
2. Grease cap
3. Spindle cotter pin
4. Spindle nut
5. Spindle washer
6. Outer cone bearing
7. Outer cup bearing
8. Grease seal
9. Inner cone bearing
10. Inner cup bearing
11. Wheel mtg hub
12. Wheel stud
13. Grease seal seat
14. U-bolt nut
15. Lockwasher
16. U-bolt
17. Clamp
18. Hexagon locknut
19. Hexagon head bolt
20. Cotter pin
21. Spring rivet
22. Axle
23. Leaf type spring

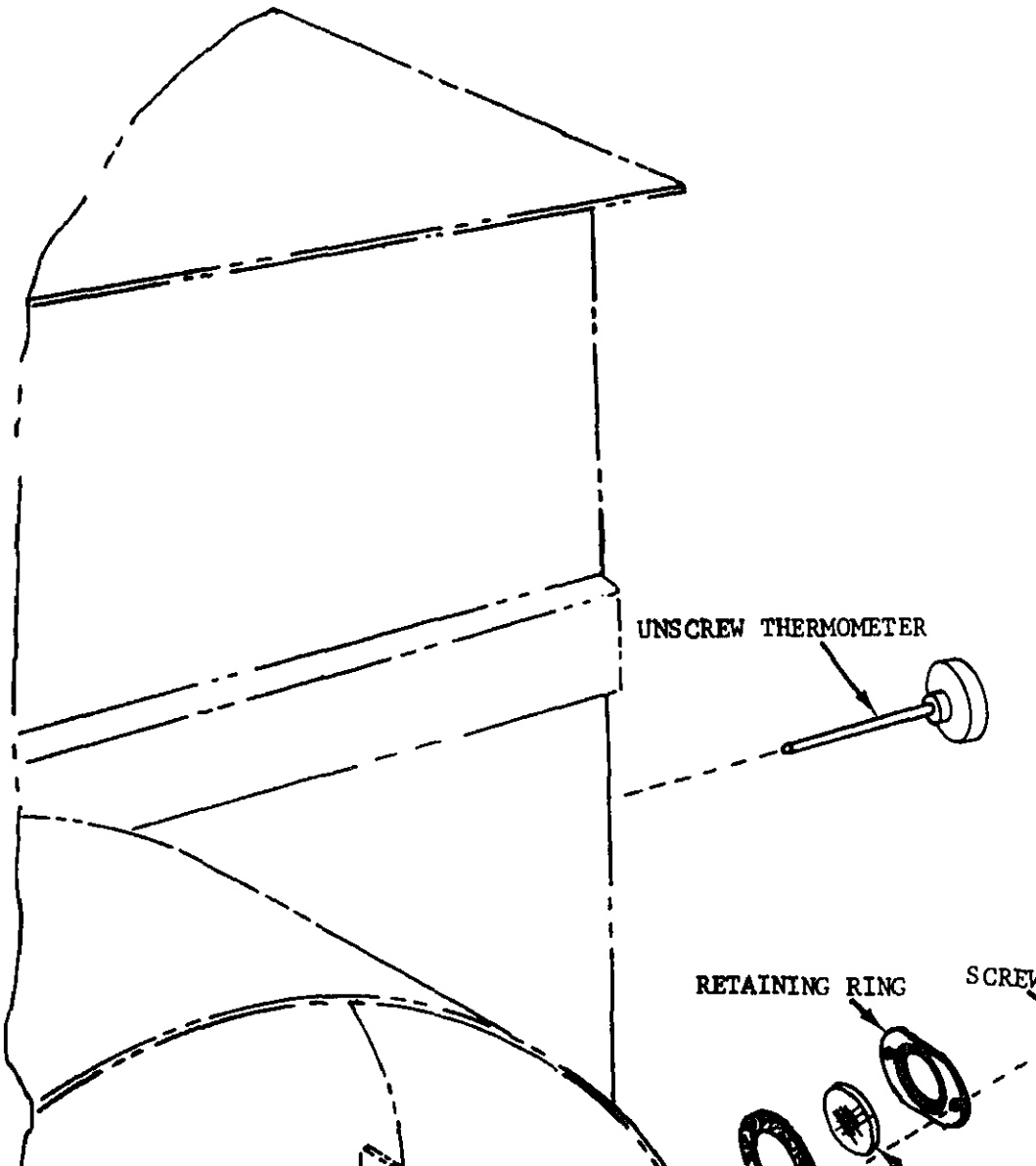
ME5-3895-334-1

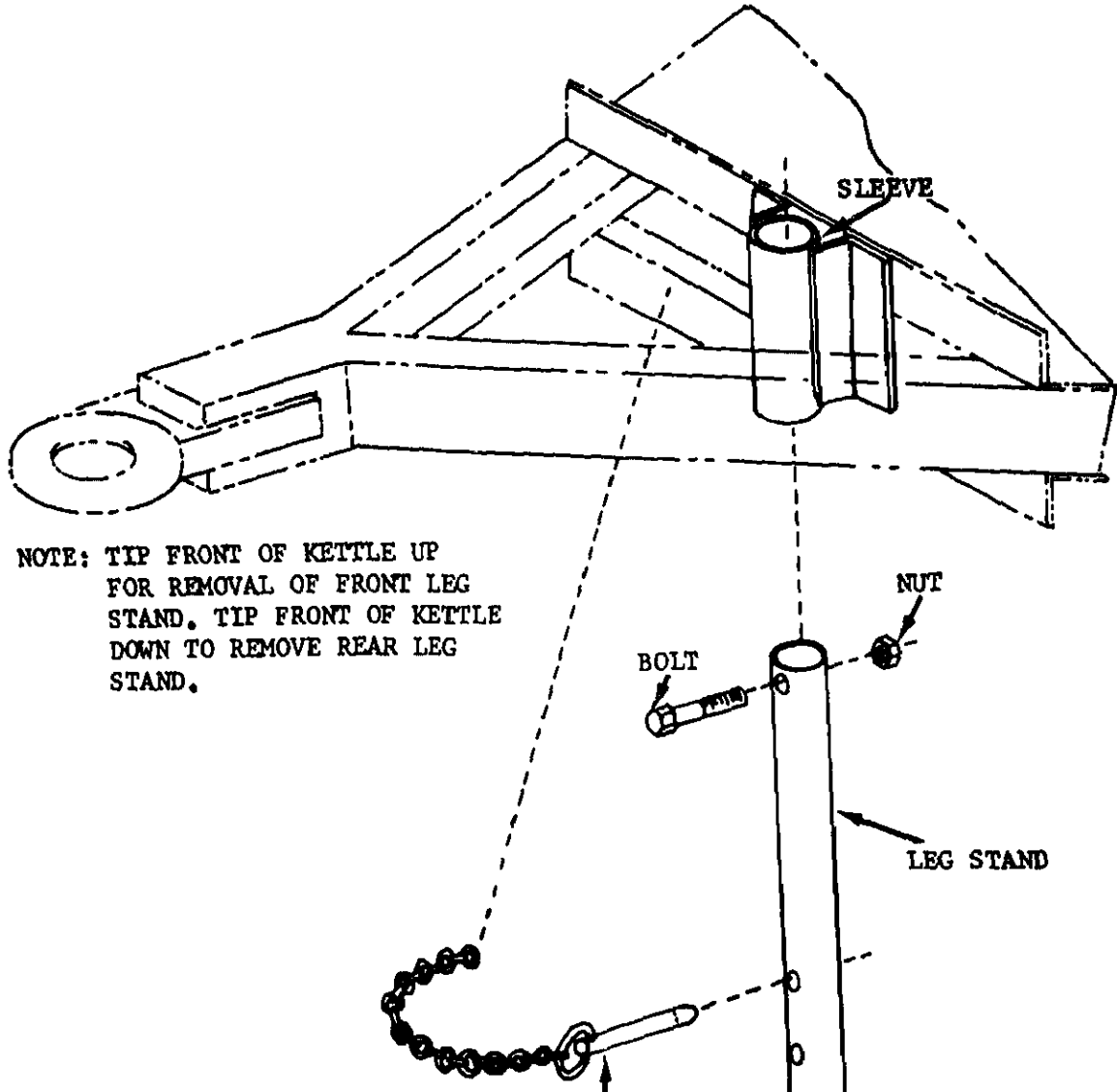
Figure 3-11. Hub, axle and spring, removal.

nove the wheel.

. Refer to figure 3-11 for shackle bolt, removal and tallation.

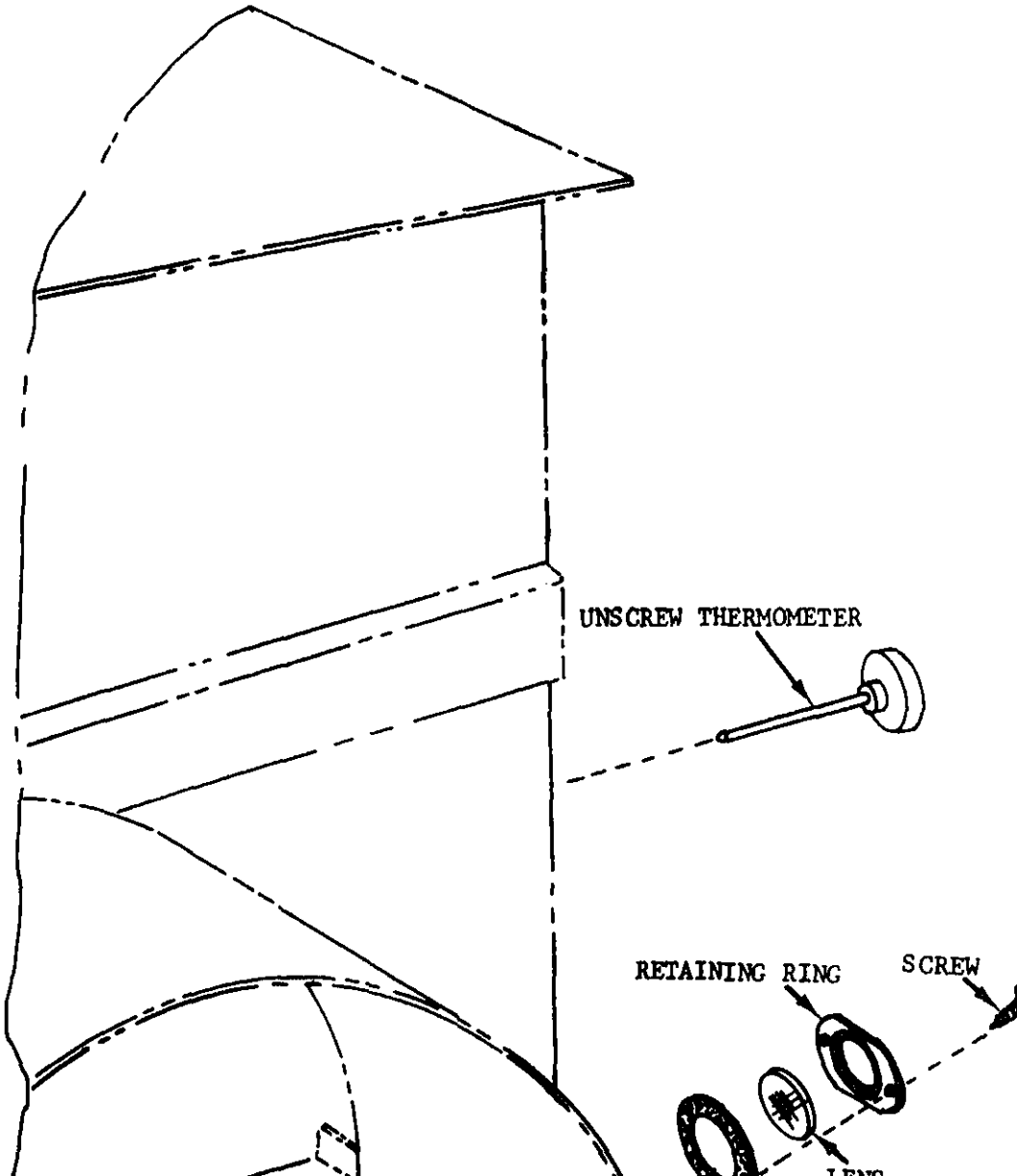
stallation.

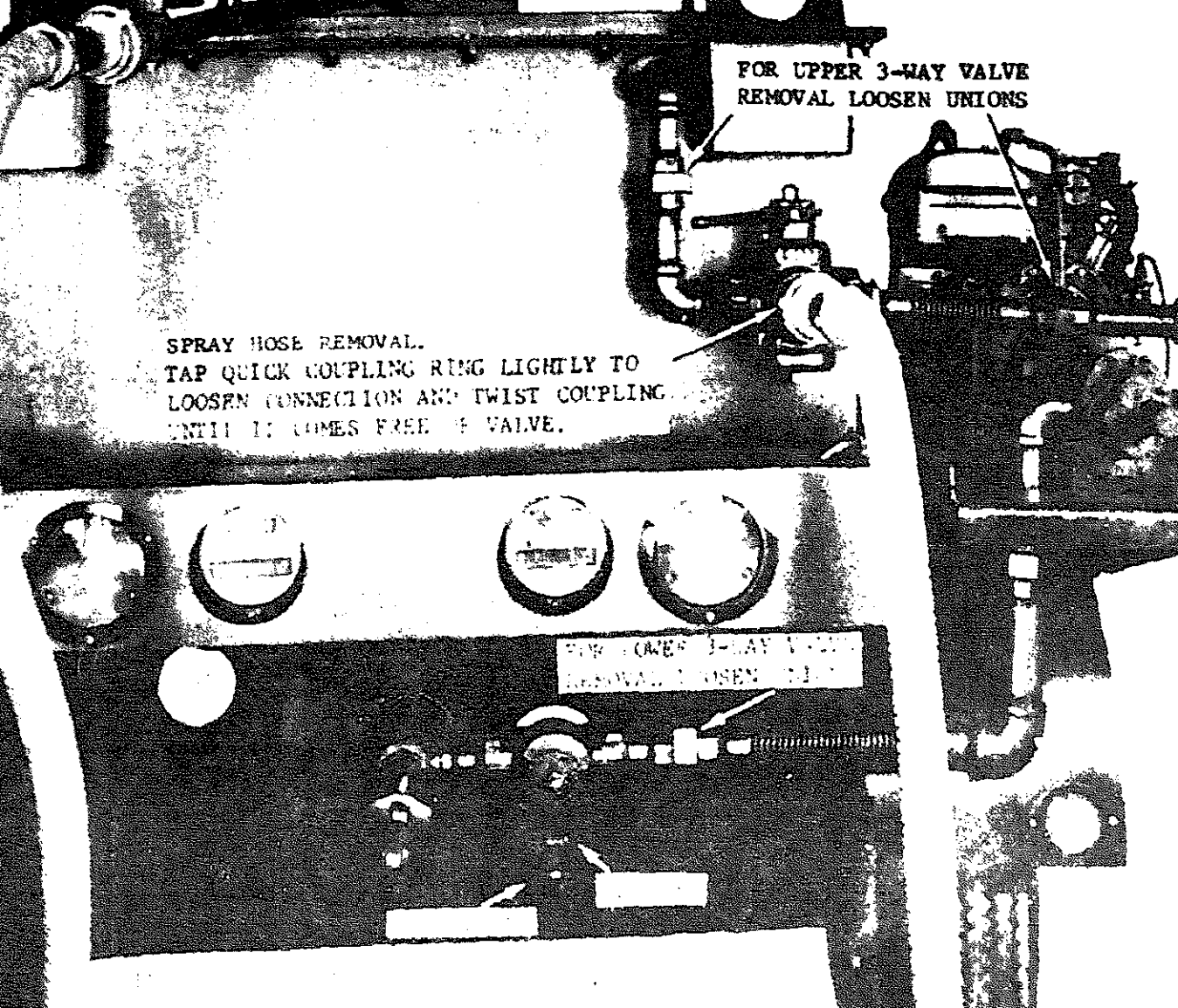




NOTE: TIP FRONT OF KETTLE UP FOR REMOVAL OF FRONT LEG STAND. TIP FRONT OF KETTLE DOWN TO REMOVE REAR LEG STAND.

b. Refer to figure 3-11 for shackle bolt, removal and installation.




FOR UPPER 3-WAY VALVE
REMOVAL LOOSEN UNIONS
SPRAY HOSE REMOVAL.
TAP QUICK COUPLING RING LIGHTLY TO
LOOSEN CONNECTION AND TWIST COUPLING
UNTIL IT COMES FREE

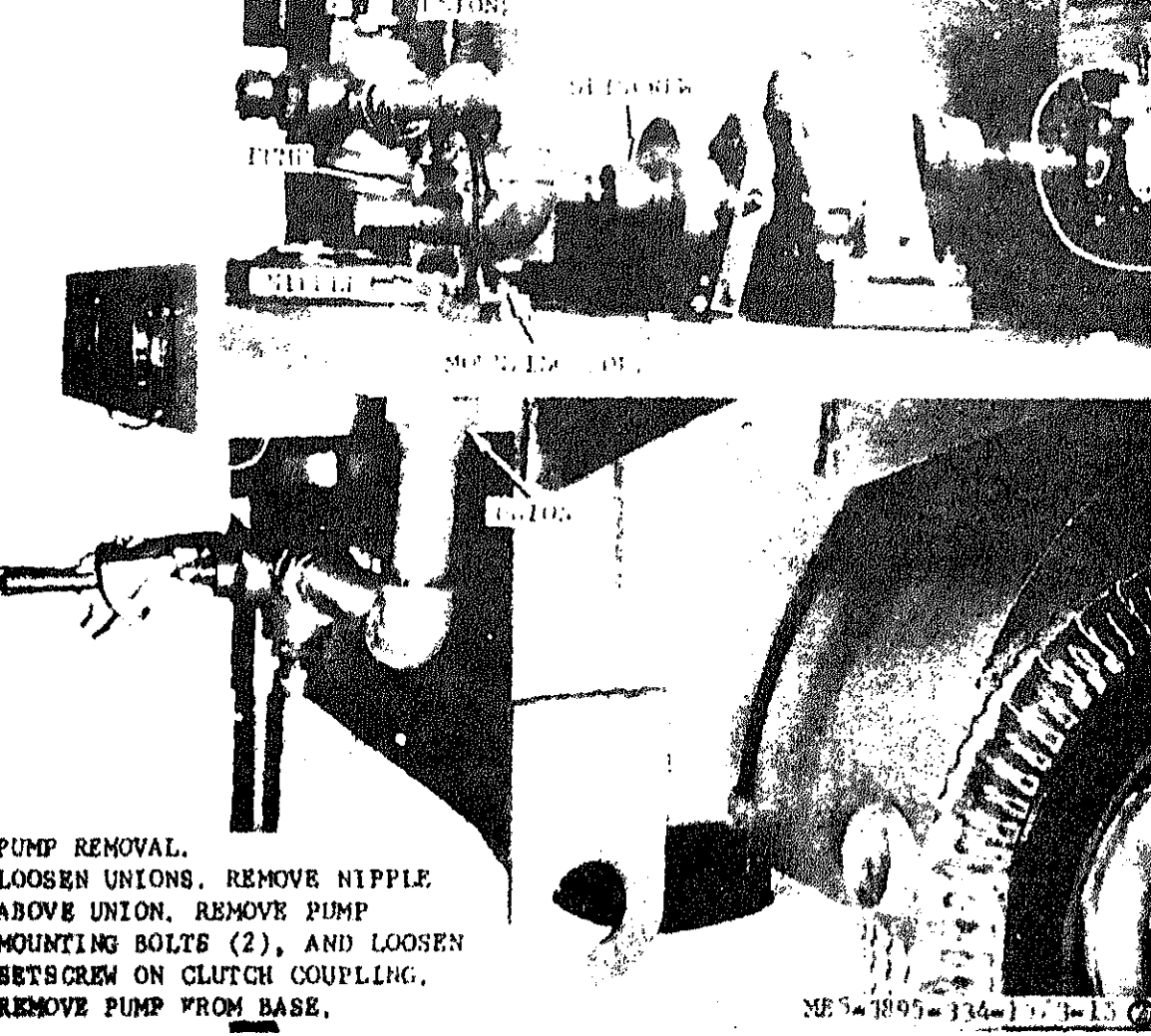
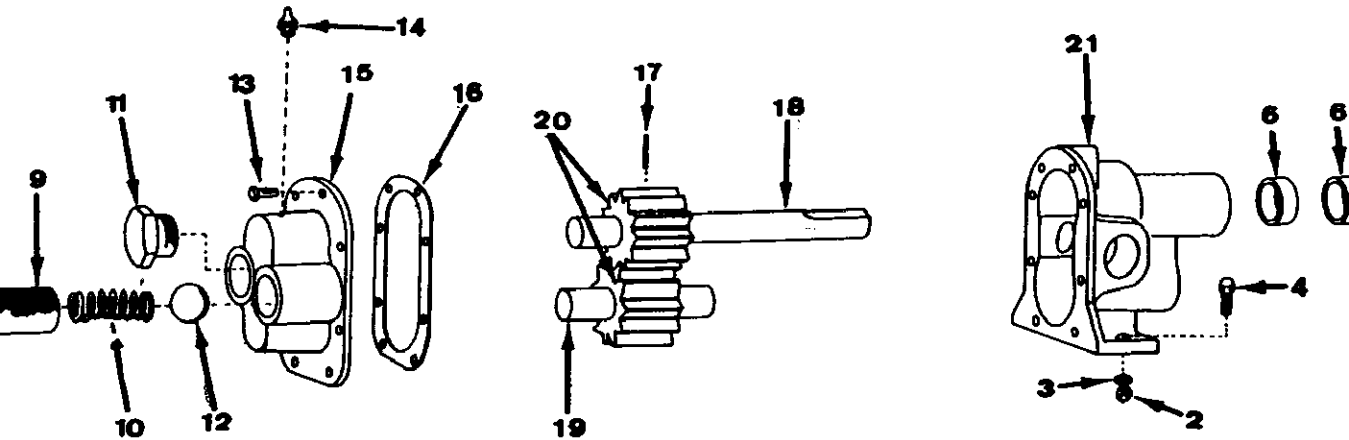


Figure 3-15. Piping, three-way valve, spray hose and pump, removal and installation (sheet 2 of 2).



o figure 3-16:

tumen pump
xagon steel nut
ckwasher
xagon head capscrew
cking nut
cking ring
pass nut
knut
justing screw
ass valve spring
pass plug nut
inless steel ball
er screw
rication fitting
er
er gasket
r to shaft pin
e shaft
shaft
p gear
pump

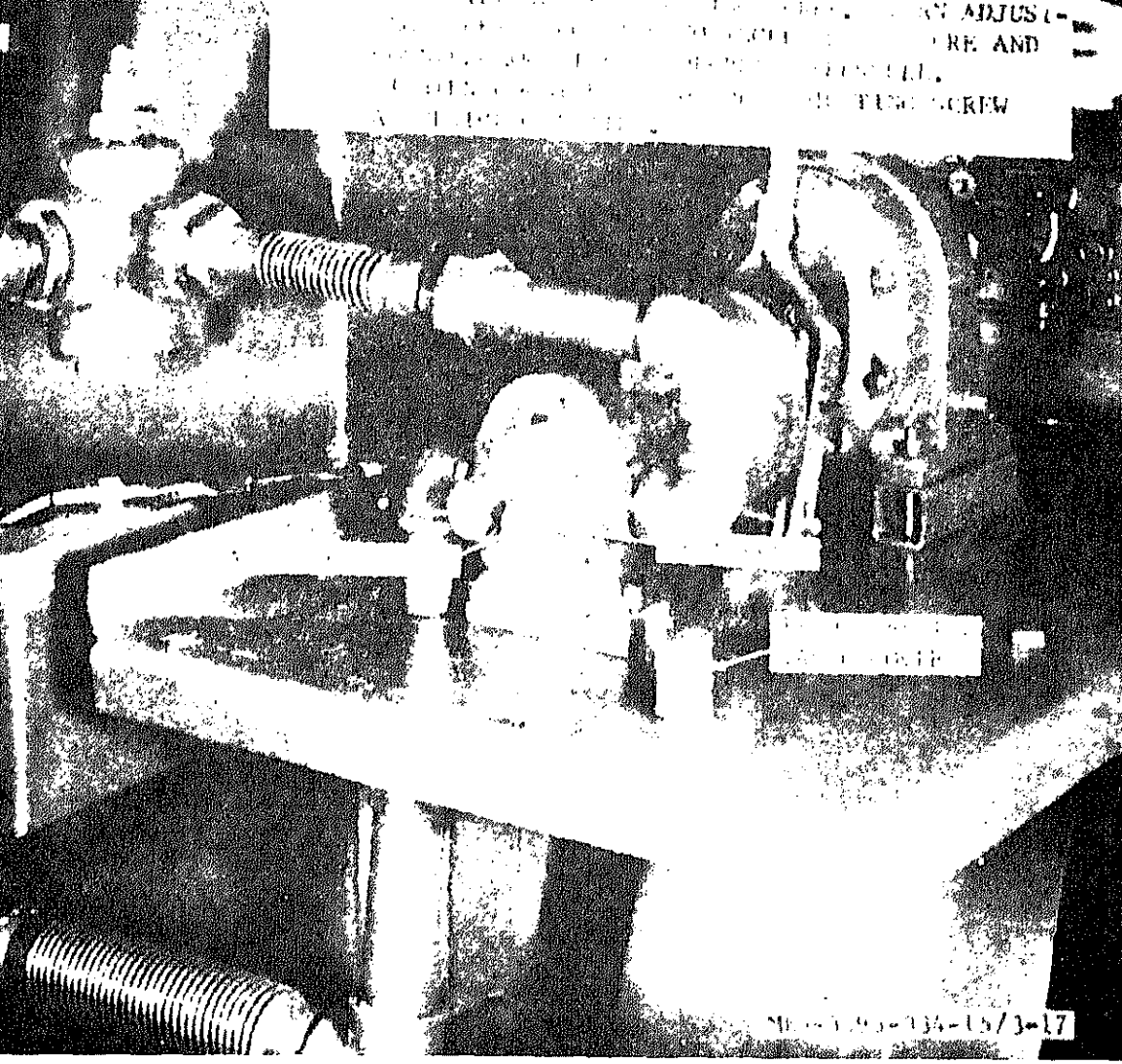


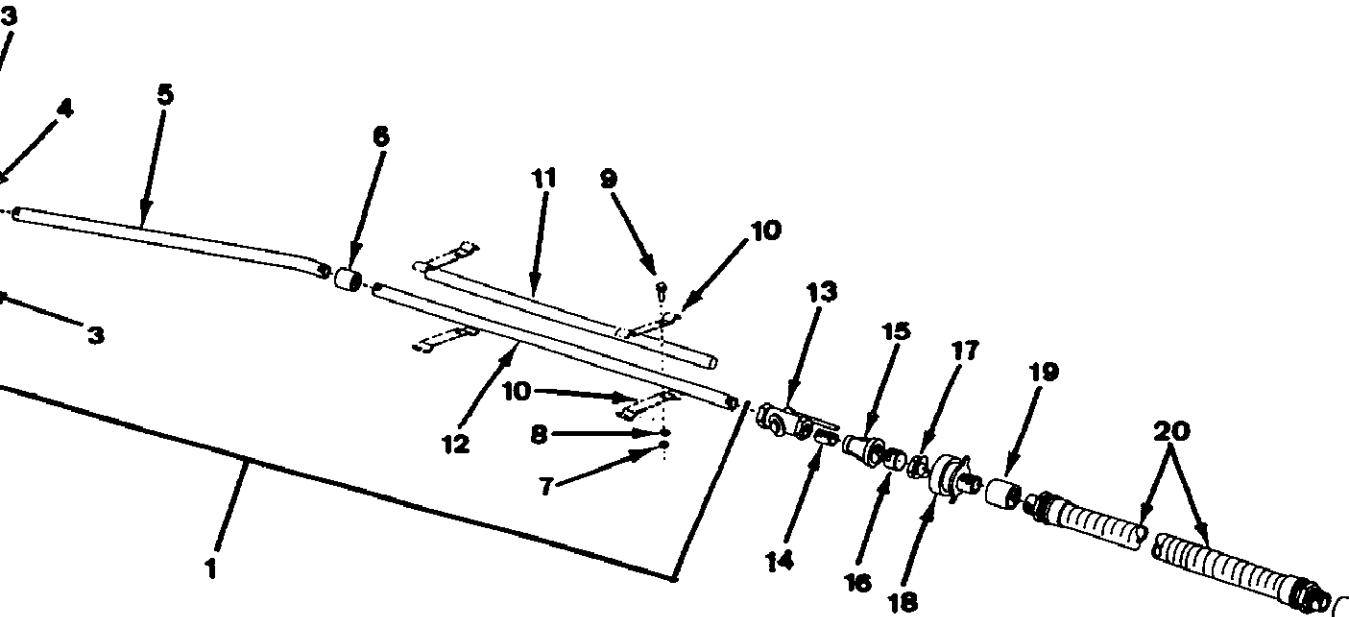
Figure 3-17. Pump pressure relief valve adjustment.

E. Piping System

r to sheet 1 of figure 3-15 for three-way valve, oval and installation.

removal and installation.

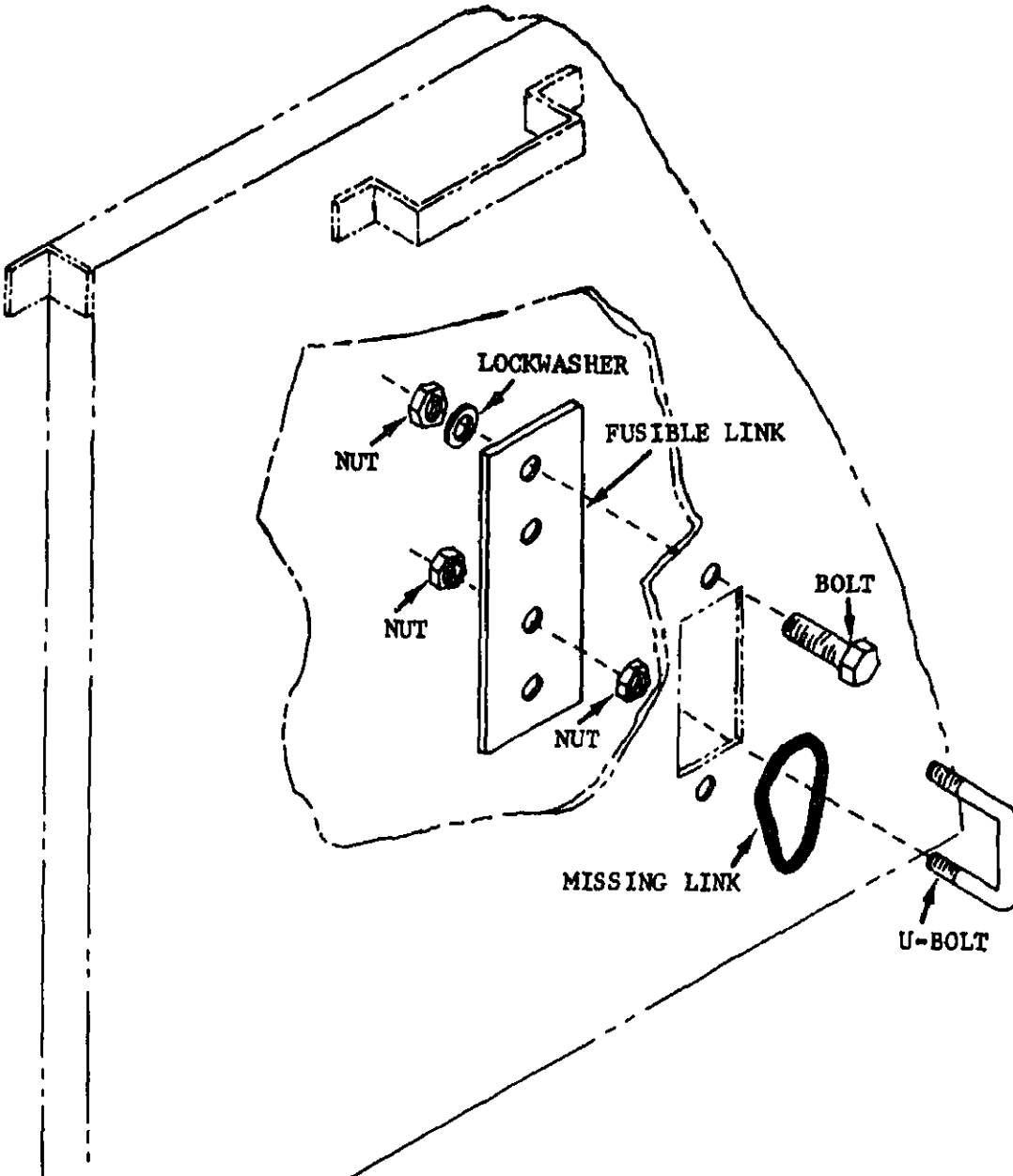
b. Refer to figure 3-18 for shutoff valve



re 3-18:

r assembly
zzle
t elbow

pling
nut
her
head capscrew
bracket


LOCKWASHER
NUT
FUSIBLE LINK
NUT
BOLT
NUT
MISSING LINK
U-BOLT

b. Refer to item 21, figure 3-20, for tank pressure relief valve, removal and installation.

c. Refer to item 15, figure 3-21, for burner assembly, removal and installation; also, burner disassembly and reassembly.

d. Refer to item 17, figure 3-20, for fuel shutoff valve, removal and installation.

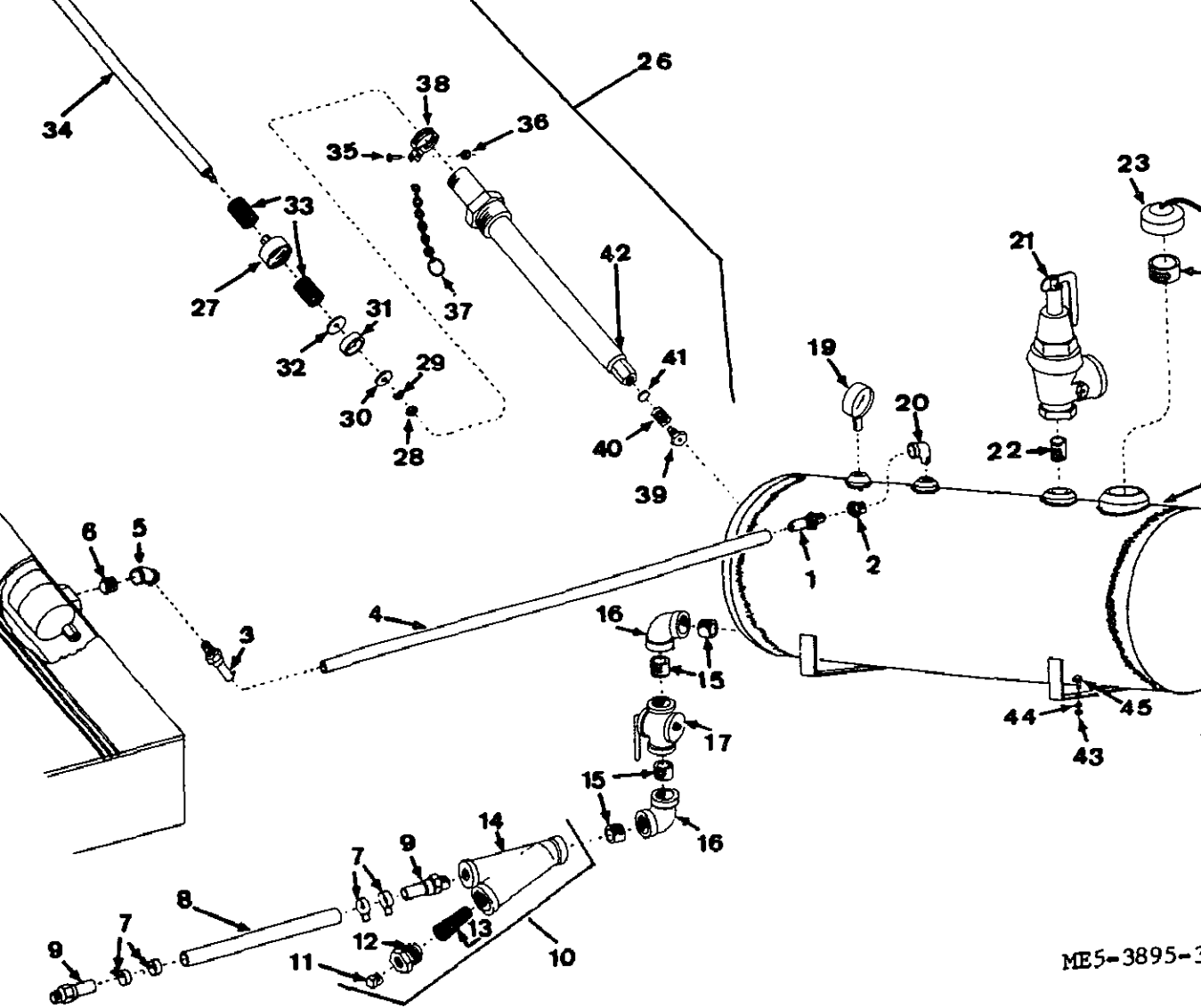
e. Refer to figure 3-20, item 10, for line Y-strainer,

f. For burner thermostatic control, rer installation, refer to (1) thru (3), below.

(1) Refer to item 39, figure 3-21, fo sensing element, removal and installation.

(2) Refer to items 8 and 4, figure 3-2 and air line, removal and installation.

(3) Refer to item 43, figure 3-21, f thermostatic control, removal and installati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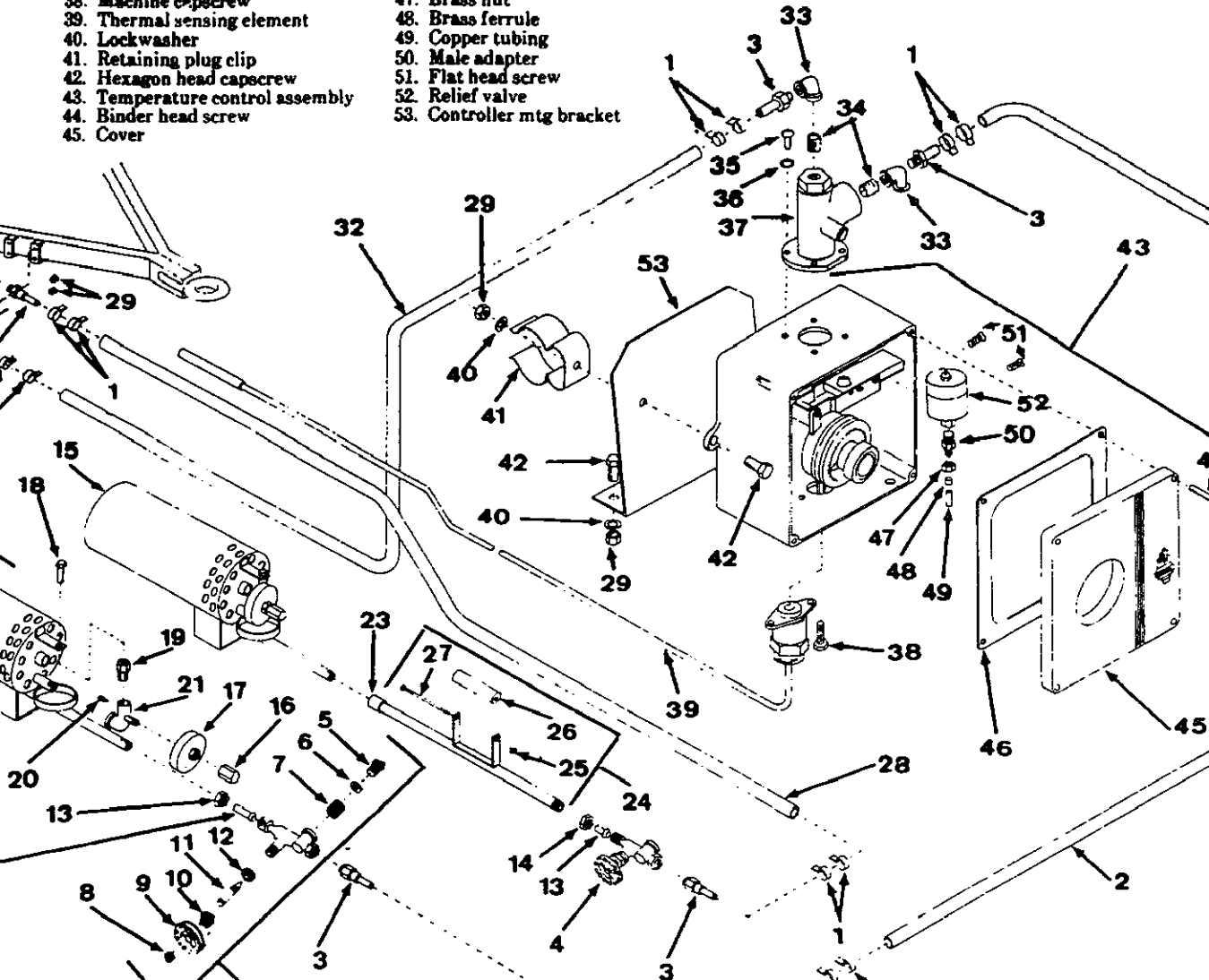
ME5-3895-3

37. Throttling valve
38. Machine capscrew
39. Thermal sensing element
40. Lockwasher
41. Retaining plug clip
42. Hexagon head capscrew
43. Temperature control assembly
44. Binder head screw
45. Cover
46. Gasket
47. Brass nut
48. Brass ferrule
49. Copper tubing
50. Male adapter
51. Flat head screw
52. Relief valve
53. Controller mtg bracket



Section I. SHIPMENT AND LIMITED STORAGE

eparation of Equipment for Shipment

eneral. When preparing the heating kettle for nt, an inspection must be made to see that the in a good state of repair and can be put into iate operation upon arrival.

eparation.

Prepare the engine for shipment in accord-th the instructions in TM 5-2805-256-14.

Remove and separately pack the following ents:

(a) Fuel hose assembly, spray hose, and spray embly.

(b) Drawoff valve.

(c) Thermometer.

(d) Thermostatic control.

Clean all surfaces with an approved cleaning and dry thoroughly.

Refer to the basic issue items list (appen. B). ns listed are on or with the heating kettle and ceable condition.

Refer to TM 740-90-1 for preservation, pack-l shipping instructions.

oading the Equipment for Shipment

mp Loading. Provide a suitable ramp at the the carrier. Position the bitumen heating ket-the bed of the carrier by means of another

ing Loading. Attach slings to the two front o rear lifting eyes. Use a suitable hoist and bitumen heating kettle to the bed of the car-

eyes and secure the wires to the bed of th

4-3. Preparation of Equipment for Stora

a. Definition. Limited storage is defined as not to exceed 6 months.

b. Inspection. Make a complete inspectio bitumen heating kettle as described in parag Correct or report all discrepancies noted maintenance.

c. Preservation. Equipment in limited sto be given only limited preservation as specif inafter; also, the following operations will formed:

(1) *Cleaning and drying.* Prior to the ap of any preservative or paint, thoroughly surfaces to be coated with an approved clea vent. Exercise care in cleaning so that the e circuits and components are not damage cleaning, and before applying the preservat surfaces and parts will be thoroughly dried.

(2) *Painting.* Remove all rust, corrosi scale from the surfaces to be painted. Refer 213 for detailed painting instructions.

(3) *Engine.* Refer to TM 5-2805-256-14 f ervation of the engine.

(4) *Tires.* Inflate the tires to 45 psi. Ra block the heating kettle so that no weight on the tires.

(5) *Weatherproofing.* A waterproof cov be provided to protect the bitumen heating stored outside. Seal all openings such as the

uipment when equipment is initially placed in nited storage and every 30 days thereafter. Re- ired maintenance will be performed promptly to

ings, gears, and so on, at least every 30 days. ment must be serviced and in satisfactory ope condition before it is operated.

Section II. DEMOLITION TO PREVENT ENEMY USE

5. General

en capture or abandonment of the bitumen heat- kettle to an enemy is imminent, the responsible t commander must make the decision either to troy the equipment or to render it inoperative. sed on this decision, orders are issued which cover desired extent of destruction. Whatever method demolition is employed, it is essential to destroy same vital parts of all heating kettles and all responding repair parts (TM 750-244-3).

6. Demolition to Render the Bitumen Heating ttle Inoperative

Mechanical Means. Use sledge hammers, crow- s, picks, axes, or any other heavy tools which may available to destroy the following:

(1) Engine block, gear reducer assembly, clutch embly, and pump assembly.

(2) Upper and lower three-way valves.

(3) Thermostat bulbs, thermostats, gages, and d pump assembly.

(4) Tires.

ote. The above steps are minimum requirements for this hod.

Misuse. Drain engine crankcase of all oil and with gravel, nuts, bolts, screws, or broken glass, operate the power spray system.

ote. The above steps are the minimum requirements for this

(2) Place a ½-pound charge on the gear r assembly.

(3) Place a ½-pound charge between the air pressure tank and the outer shell.

(4) Place a ½-pound charge on the axle b the right wheel and frame assembly.

b. Weapons' Fire. Fire on the heating kett the heaviest practical weapons available.

4-8. Other Demolition Methods

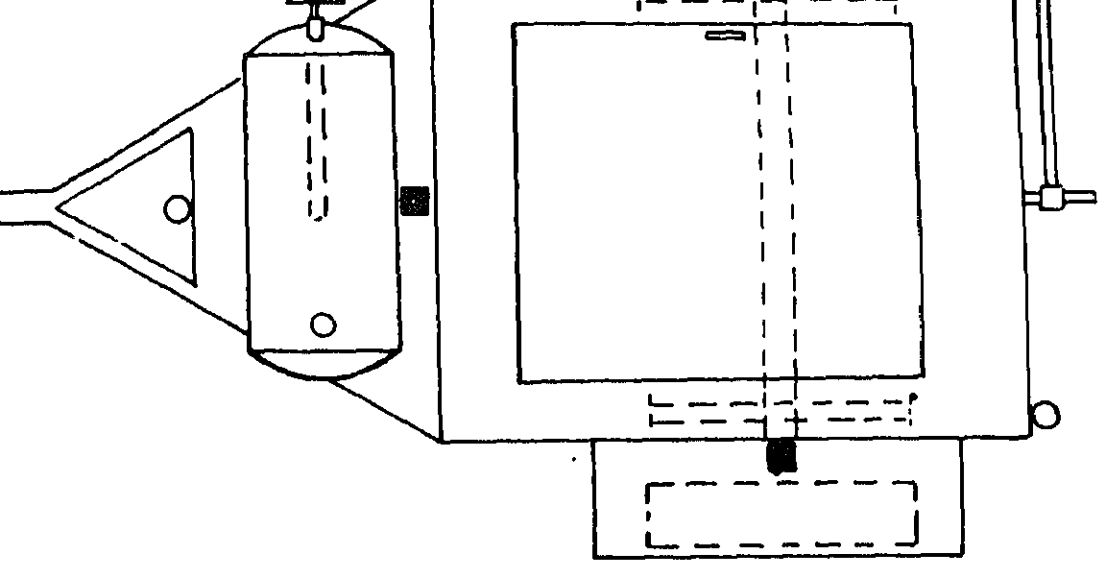
a. Scattering and Concealment. Remove all accessible parts, such as the engine, three-way gages, burner assembly, and spray bar assemb scatter them through dense foliage, bury them and sand, or throw them in a lake, stream, o body of water.

b. Burning. Pack rags, clothing, or canvas and around the unit. Saturate this packin gasoline, oil, or diesel fuel, and ignite.

c. Submersion. Totally submerge the unit in of water to provide water damage and concea A body of salt water will do greater dam metal parts than submersion in a body of water.

4-9. Training

All operators should receive thorough training destruction of the heating kettle. Simulated de



LEGEND:

■ ½ POUND CH

ME5-3895-334-15

Figure 4-1. Placement of charges.

Section I. GENERAL

. Scope

. The following instructions are provided for the of field and depot maintenance personnel. They tain information on the maintenance of the equip- nt which is beyond the scope of the tools, equip- nt, personnel, or supplies normally available to anizational maintenance facilities.

. Appendix A contains a list of all publications licable to field and depot maintenance facilities for this equipment. Appendix C contains the tenance allocation chart. Appendix B contai basic issue items list.

5-2. Forms and Records

DA Forms and procedures used for equipmen tenance will only be those prescribed by TM (Army Equipment Record Procedures).

Section II. DESCRIPTION AND DATA

. Description

er to paragraph 1-3 for a complete description of heating kettle.

5-4. Field and Depot Maintenance Tabul Data

a. Refer to TM 5-2805-256-14 for engine tab data.

b. Refer to paragraph 1-6 for kettle tabulated

Section III. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

Special Tools and Equipment

special tools or equipment are required to main- or repair the heating kettle.

Direct Support, General Support, and Depot ntenance Repair Parts

tenance repair parts are listed and illustra TM 5-3895-334-25P.

5-7. Specially Designed (Fabricated) Tools Equipment

No specially designed tools or equipment are re

operate or operates improperly	spring improperly adjusted or broken.	(para. 5-19).
	b. Drive pin sheared.	b. Replace drive pin (para 5-19). Inspect gear and drive shaft for wear or damage, and replace if necessary.
	c. Gears worn or broken.	c. Replace gears (para. 5-19).
	d. Gasket defective.	d. Replace gasket (para. 5-19).
	e. Packing defective.	e. Replace packing (para. 5-19).
2. Clutch fails to operate or operates improperly.	a. Worn or damaged shifter collar.	a. Replace shifter collar (para. 5-20).
	b. Worn or damaged wedge sleeve.	b. Replace wedge sleeve (para. 5-20).
	c. Lever rollers worn or damaged.	c. Replace lever rollers (para. 5-20).
	d. Driving plate worn or damaged.	d. Replace driving plate (para. 5-20).
3. Gear reducer fails to operate or operates improperly.	a. Seal leaking lubricant.	a. Replace seal (fig. 5-1) (para. 5-12).
	b. Gasket leaking lubricant.	b. Replace gasket (fig. 5-1) (para. 5-12).
	c. Bearing damaged or worn.	c. Replace bearing (fig. 5-1) (para. 5-12).
	d. Gears damaged or worn.	d. Replace gears (fig. 5-1) (para. 5-12).

Section V. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS AND AUX

5-9. Engine

Refer to TM 5-2805-256-14 for engine repair.

5-11. Electrical System

Refer to paragraph 3-23 for electric
moval and installation.

assembly
nut

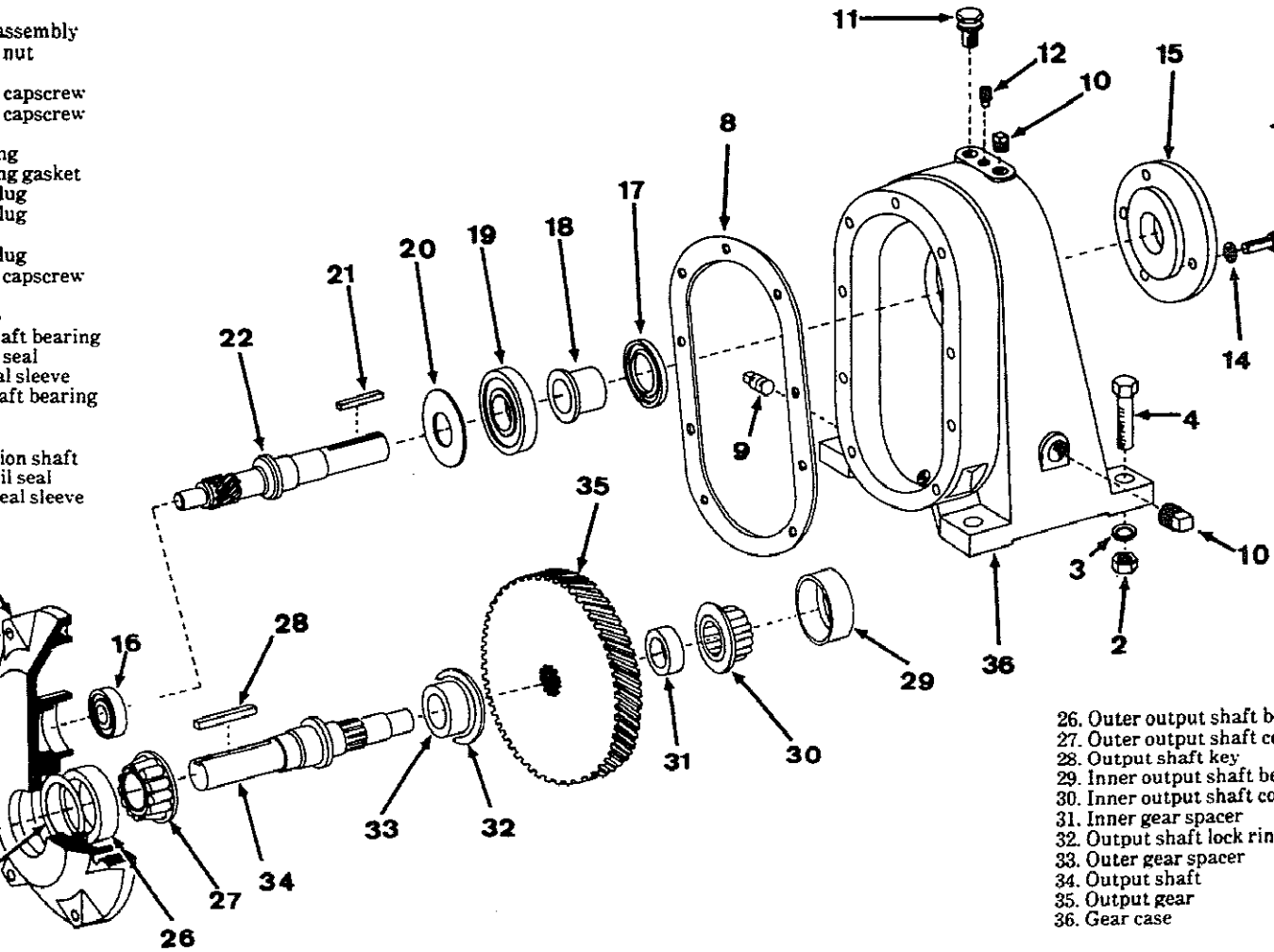
capscrew
capscrew

ng
ng gasket
lug
lug

lug
capscrew

aft bearing
seal
l sleeve
aft bearing

ion shaft
il seal
eal sleeve



26. Outer output shaft b
27. Outer output shaft c
28. Output shaft key
29. Inner output shaft be
30. Inner output shaft co
31. Inner gear spacer
32. Output shaft lock rin
33. Outer gear spacer
34. Output shaft
35. Output gear
36. Gear case

5. Leg Stands

to paragraph 3-26 for leg stands, removal and llation.

6. Springs

r to figure 3-11 for spring, removal and installa-

6. Reflectors

r to paragraph 3-28 for reflector, removal and allation.

7. Thermometer

er to paragraph 3-24 for thermometer, removal installation.

8. Pressure Gage

er to paragraph 3-30 for pressure gage, removal installation.

9. Pump

er to paragraph 3-31 for pump, removal and in-lation. Disassemble and reassemble pump as wn by figure 3-16.

5-21. Fuel System

a. Refer to paragraph 3-35*a* for air pump, and installation. Refer to figure 3-20 for a disassembly and reassembly.

b. Refer to paragraph 3-35*c* for burner a removal and installation. Refer to paragra for burner assembly, disassembly and reasse

c. Refer to paragraph 3-35*g* for thermost trol, removal and installation.

d. Refer to paragraph 3-35*b* for pressu valve, removal and installation.

e. Refer to paragraph 3-34*e* for fuel shut removal and installation.

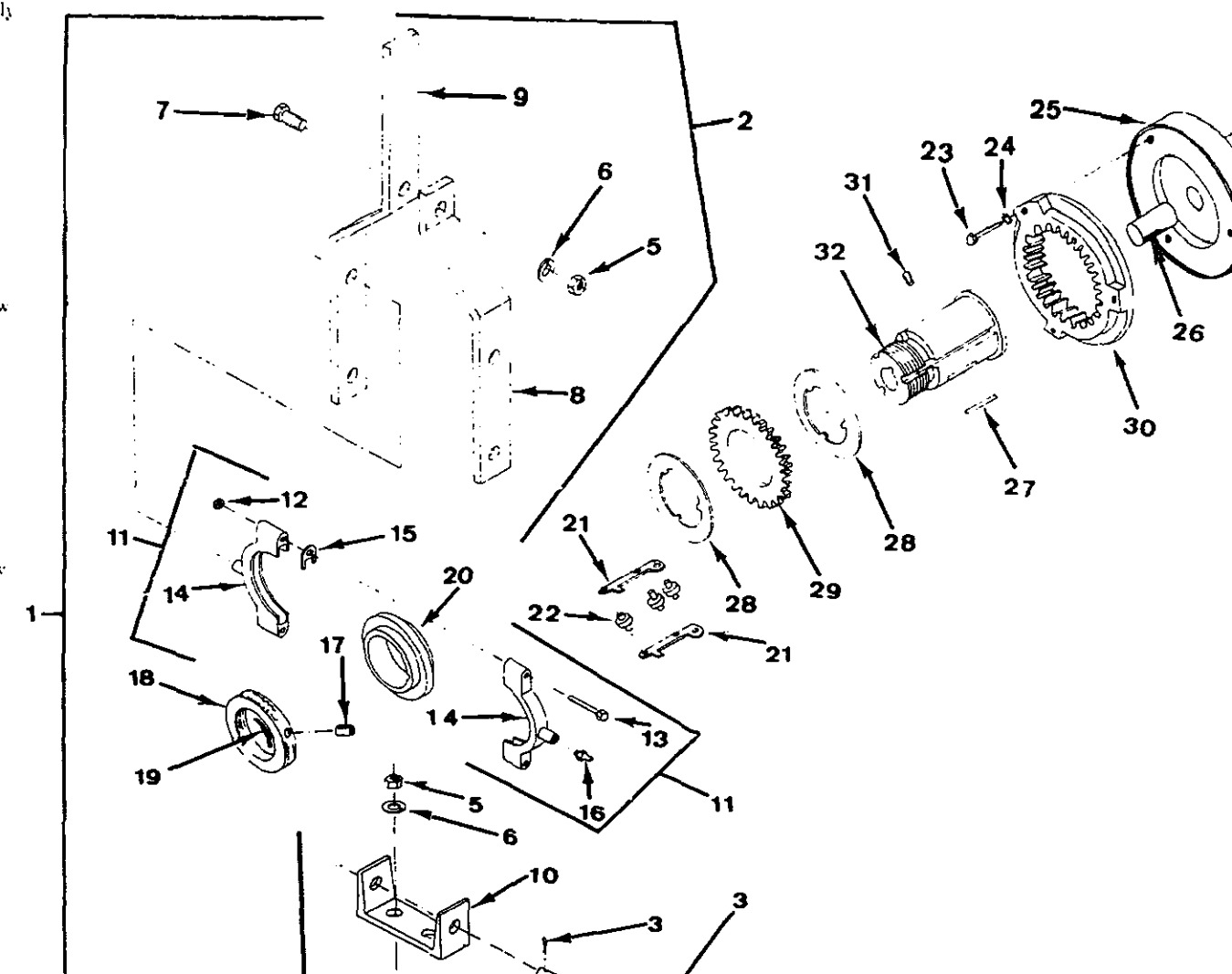
5-22. Bitumen Piping System

Refer to figure 3-15, sheet 1, for piping and t valve, removal and installation.

5-23. Melt Tank

Refer to figure 5-3 for melt tank, remova stallation. Repair melt tank by welding welding.

***Caution:* Use a hoist or lifting devic minimum 500-pound lifting capacity whe ing and installing melt tank.**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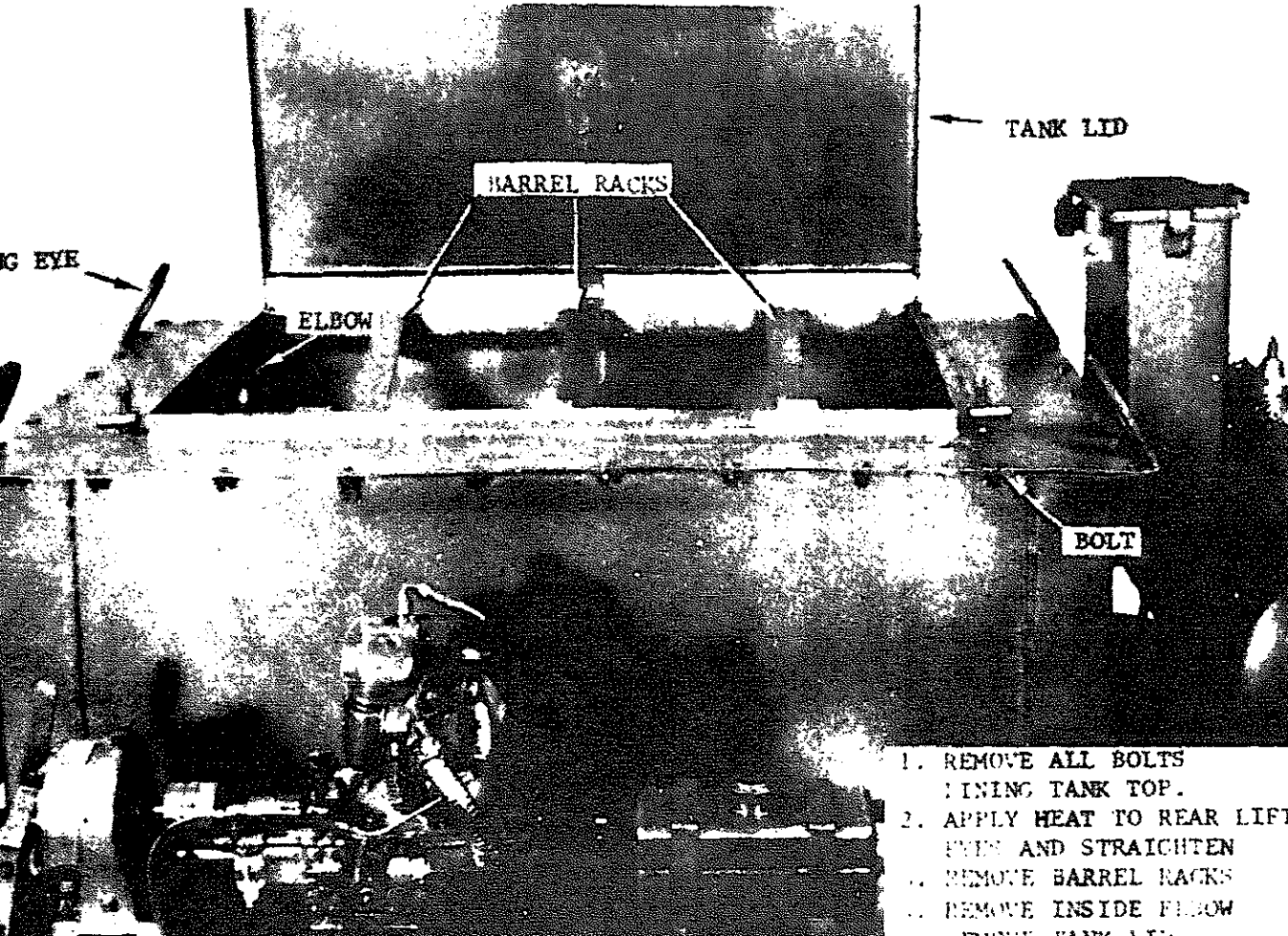
TANK LID
BARREL RACKS
G EYE
ELBOW
BOLT
1. REMOVE ALL BOLTS
INING TANK TOP.
2. APPLY HEAT TO REAR LIFT
EYES AND STRAIGHTEN
. REMOVE BARREL RACKS
. REMOVE INSIDE ELBOW

rotection

00-200-10	Hand Portable Fire Extinguishers for Army Users

cation

L	Fuels, Lubricants, Oils and Waxes
05-256-12	Military Standard Engine Lubrication Order
95-334-12	Bituminous Kettle Lubrication Order

ing

3	Painting Instructions for Field Use

tenance

370-1	Care and Maintenance of Pneumatic Tires
750	Army Equipment Record Procedures
305-256-14	Operator, Organizational, DS and GS Maintenance Manual, Milita Standard Engine
305-256-24P	Organizational, DS and GS Maintenance Repair Parts and Special To Lists, Military Standard Engine
395-334-25P	Organizational, DS, GS, and Depot Maintenance Repair Parts a Special Tools List, Kettle, Heating, Bituminous

nent and Storage

-90-1	Administrative Storage of USAMEC Mechanical Equipment
-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use

cope

appendix lists items which accompany the
inous kettle or are required for installation,
ion, or operator's maintenance.

General

asic issue items list is divided into the following
s:

asic Issue Items — Section II. A list of items
accompany the bituminous kettle and are re-
by the operator/crew for installation, opera-
maintenance.

laintenance and Operating Supplies — Section
listing of maintenance and operating supplies
ed for initial operation.

xplanation of Columns

llowing provides an explanation of columns in
ular list of Basic Issue Items, Section II.

ource, Maintenance, and Recoverability Codes

Source code, indicates the listed item. Source
re:

Code	Explanation
	Repair parts which are stocked in or supplied from the GSA/DSA or Army supply system, and authorized for use at indicated maintenance categories.
	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
	Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.
	Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
	Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of

Code	Explanation
G-	Major assemblies that are procured with PEM for initial issue only as exchange assemblies and GSU level. These assemblies will not b above DS and GS level or returned to depo level.

(2) Maintenance code indicates the lowes gory of maintenance authorized to install th item. The maintenance level code is:

Code	Explanation
C	Operator/crew

(3) Recoverability code, indicates wheth serviceable items should be returned for recov salvage. Items not coded are expendable. Re ability codes are:

Code	Explanation
R	Applied to Repair parts (assemblies and com which are considered economically repairable and general support maintenance levels. W maintenance capability to repair these items exist, they are normally disposed of at the C When supply considerations dictate, some of t pair parts may be listed for automatic return t for depot level repair as set forth in AR 710-5 so listed, they will be replaced by supply or change basis.
S	Repair parts and assemblies which are economic pairable at DSU and GSU activities and which ly are furnished by supply on an exchange basi items are determined by a GSU to be uneconc repairable they will be evacuated to a depot for tion and analysis before final disposition.
T	High dollar value recoverable repair parts which ject to special handling and are issued on an e basis. Such repair parts are normally repaired hauled at depot maintenance activities.
U	Repair parts specifically selected for salvage b mation units because of precious metal conter cal materials, or high dollar value reusable ca castings.

b. Federal Stock Number. This column ind the Federal stock number assigned to the iter will be used for requisitioning purposes.

c. Description. This column indicates the F item name and any additional description of th

...the quantity of the item used at the assembly level.

...o. A "V" appearing in this column in lieu of a ...tity indicates that a definite quantity cannot be ...ated (e.g., shims, spacers, etc.).

...Quantity Furnished With Equipment. This col... indicates the quantity of an item furnished with ...quipment.

...Illustration. This column is divided as follows:

(1) *Figure Number.* Indicates the figure number ...e illustration in which the item is shown.

(2) *Item Number.* Indicates the callout number ... to reference the item in the illustration.

... Explanation of Columns in the Tabular ...of Maintenance and Operating ...plies—Section III

Component Application. This column identified ...component application of each maintenance or

c. Description. This column indicates the ... name and brief description.

d. Quantity Required for Initial Operation. ... column indicates the quantity of each maintena... operating supply item required for initial ope... of the equipment.

e. Quantity Required for 8 Hours' Operation. ... column indicates the estimated quantities re... for an average 8 hours of operation.

f. Notes. This column indicates informative ... keyed to data appearing in a preceding column.

B-5. Federal Supply Code for Manufacture...

Code	*Manufacturer*
03742	Midwest Tank and Mfg. Co.

Section II. BASIC ISSUE ITEMS

(2) Federal stock No.	(3) Description Ref No. & Mfr code Usable on code	(4) Unit of meas	(5) Qty inc in unit	(6) Qty furn with equip	(7) Illustr (A) fig No.
	DA TECHNICAL MANUAL TM 5-3895-334-15	EA		1	
	DA TECHNICAL MANUAL TM 5-2805-256-14	EA		1	
	DA LUBRICATION ORDER LO 5-2805-256-12	EA		1	
	DA LUBRICATION ORDER				

	(2) Federal Stock number	(3) Description	(4) Quantity required f/initial operation	(5) Quantity required f/8 hrs operation	
ubri- LO -12					(1) See C910 and requisitio
	9130-160-1818(1)	FUEL, GASOLINE: Automotive: Bulk as follows: 91A Grade	1½ gal	6 gal (3)	(2) See curre tion and reple
	9140-286-5288(2)	DIESEL FUEL: 55-gal drum as follows: DF-1	20 gal	40 gal (4)	
r		OIL, LUBRICATING: 1-qt can as follows:			(3) Average gal per hour of
	9150-265-9433	OE-30	6/8 qt	(2)	
	9150-265-9425	OE-10	6/8 qt	(2)	(4) Burner ta tion is 5 gal pe operation.
s		GREASE, AUTOMOTIVE AND ARTILLERY: 1-lb can as follows:			
	9150-190-0904(2)	GAA			
	9150-261-8287(2)	GREASE, PLUG VALVE ¼-in. dia stick	1 box	(2)	

eneral

his section provides a general explanation of intenance and repair functions authorized at maintenance levels.

ection II designates overall responsibility for rformance of maintenance functions on the ied end item or component. The implementa- the maintenance functions upon the end item ponent will be consistent with the assigned enance functions.

ection III lists the special tools and test equip- required for each maintenance function as nced from section II.

ection IV contains supplemental instructions, atory notes and/or illustrations required for cular maintenance function.

xplanation of Columns in Section II

roup Number, Column (1). The assembly group merical group assigned to each assembly in a wn breakdown sequence. The applicable as- y groups are listed on the MAC (Maintenance tion Chart) in disassembly sequence beginning he first assembly removed in a top-down dis- bly sequence.

ssembly Group, Column (2). This column con- a brief description of the components of each bly group.

Maintenance Functions, Column (3). This col- lists the various maintenance functions (A gh K) and indicates the lowest maintenance ory authorized to perform these functions. The ol designations for the various maintenance ories are as follows:

C — Service. To clean, to preserve, to cha to add fuel, lubricants, cooling agents, and is desired that elements, such as painting and ting, be defined separately, they may be so lis

D — Adjust. To rectify to the extent nece bring into proper operating range.

E — Aline. To adjust specified variable of an item to bring to optimum performance.

F — Calibrate. To determine the correcti made in the readings of instruments or te ment used in precise measurement. Consis comparison of two instruments, one of w certified standard of known accuracy, to de adjust any discrepancy in the accuracy o strument being being compared with the standard.

G — Install. To set up for use in an op environment such as an emplacement, site, o

H — Replace. To replace unserviceable ite serviceable like items.

I — Repair. Those maintenance operatio sary to restore an item to serviceable through correction of material damage or a failure. Repair may be accomplished at each of maintenance.

J — Overhaul. Normally, the highest d maintenance performed by the Army in minimize time work in process is consist quality and economy of operation. It consist maintenance necessary to restore an item to ly serviceable condition as prescribed by mai standards in technical publications for each equipment. Overhaul normally does not r item to like new, zero mileage, or zero hour c

K — Rebuild. The highest degree of mater

C-3. Explanation of Columns in Section III

a. Reference Code. This column consists of a number and a letter separated by a dash. The number references the T&TE requirements column on the MAC. The letter represents the specific maintenance function the item is to be used with. The letter is representative of columns A through K on the MAC.

b. Maintenance Category. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

ber of tools and test equipment.

C-4. Explanation of Columns in Se

a. Reference Code. This column
letters separated by a dash, both of
ences to section II. The first letter re
(5) and the second letter references
function, column (3), A through K.

b. Remarks. This column lists inf
nent to the maintenance function b
as indicated on the MAC, section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) Group No.	(2) Functional group	(3) Maintenance functions											To equ
		A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	
01	ENGINE												
0100	Engine Assembly												
	Engine, gasoline	C	O	C	C				O	F			
03	FUEL SYSTEM												
0306	Tank, Lines, Fittings												
	Cap, fuel tank	C							C				
	Lines, fuel	C							O				
0309	Fuel Filters	C							O				
06	ELECTRICAL SYSTEM												
0609	Head, Tail & Marker Lights,												
	Lamp Bulb								O				
	Lamp assembly, tail & marker	C							O				
0613	Hull or Chassis Wiring												
	Harness								O	O			
	Trailer coupling cable	C							O				
08	POWER TRANSFER												
0800	Power Transfer, AY												

	Inspect	Test	Service	Adjust	Align	Calibrate	Install	Replace	Repair	Overhaul	Rebuild	
Output Shaft, Main Shaft												
Bearings	F							F				
Gaskets & seals	F							F				
Gear & shaft	F							F				
WHEELS AND TRACKS												
Wheel Assembly	C							O				
Cup & cone bearings	O			O				O				
Seals, grease	O							O				
Tires, Tubes	C		C					O	O			
FRAME												
Pintles and Towing Attachments												
Safety chain												
Landing Gear; Leveling Jacks				C				O				
Pin, height adjustment								O				
SPRINGS & SHOCK ABSORBERS												
Rear Springs	O							F				
Bolt, shackle	O		O					O				
MISCELLANEOUS BODY *HULL & ACCESSORY* ITEMS												
Mirrors, Reflectors, Personnel Heaters, Defrosters, Wipers, Air-horn, Reflector Assembly	O							O				
GAGES (NON-ELECTRICAL) WEIGHING & MEASURING DEVICES												
Temperature Gages												
Thermometer	C							O				
Pressure Gages												
Gage, *pressure*, dial indicating	C							O				
PUMPS (EXCLUDE ENGINE PUMPS)												
Pump Assembly			C					O	F			
Gasket, housing								O				
Valve, pressure relief	C							F				

	Inspect	Test	Service	Adjust	Align	Calibrate	Install	Replace	Repair	Overhaul	Rebuild	
Fuel Tank												
Pump assembly air			C					O	O			
Thermostat, operating & safety		O	O					O				
Hose assembly								O				
Regulator, pressure			O	C				O				
Valve, relief pressure			O					O				
Valve, assembly, safety	C							O				
Line, air	C							O				
Pipe and fittings	C							O				
Valve, fuel shutoff			C					O				
Fuel tank			C					O				
Cap assembly, fill			C					C				
CONCRETE & ASPHALT EQUIPMENT (Mixers; Pavers; Spreaders; Finishers, etc.)												
Material Spray Bar			C					O	O			
Coupling, quick action	C							O				
Cock	C							O				
Nozzle, spray			C					C				
Tanks, Valves, etc.			C						F			
Link, fusible	C							O				
Valve, three-way Lower			C					O				
Valve, three-way upper			C					O				
Valve, pressure relief				O				O	O			
Pipe and fittings	C							O				
Shell assembly furnace									F			
Vat, melting	O		C					H	F			
Coupling, quick action	C							O				
Hose, spray	C							O				

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

Reference code	Maintenance category	Nomenclature	Tool number
	C	Cleaning Needle	TK-002 (0374

Section IV. REMARKS

W. C. WESTMORELAND
General, United States Ar
Chief of Staff.

ETH G. WICKHAM,
General, United States Army,
Jutant General.

ion:
e distributed in accordance with DA Form 12-25, Section II (qty rqr block no. 421), Operator's r
uirements for Heaters, Bituminous.

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